

**Taking Action to Lose Weight:  
Toward an Understanding of Individual Differences**

A Thesis

Submitted to the Faculty  
of the Department of Psychology

Drexel University

by

Rachel A. Annunziato

in partial fulfillment of the  
requirements for the degree

of

Doctor of Philosophy

September 2004



## **Dedications**

I'd like to dedicate this project to all the children and their parents I have had the pleasure and honor of working with during my training. You are a source of inspiration and validation that this career was the right choice. I'd especially like to mention BC and his mom AN who together fought and defeated leukemia and a host of other stressors. I think about you and your story often and it always brings me such awe and happiness. Finally, I'd like to thank BL who was a very special person to me during my internship year as I worked on this pro

## Acknowledgements

I have so many people to thank for helping me get this done! To my parents, Hope and Frank, thank you for all your support, advice, humor, drinks, and simply just being there throughout this process. I could not imagine possibly getting to this point without all your efforts. I am extremely lucky to have you for your wisdom and as my closest advisors. To my sister Sarah, thank you for making me laugh and never failing to send me something inspiring (QOTDs, stories, songs, etc). I made sure to proofread this about 20 times to ensure you didn't slip in any commentary. To Cleo, I loved being able to look at you every time I worked on this. I am so lucky to have this family; I love you four very much.

And of course there's my fiancée Matt. I could not thank you enough for your help in getting this done. From your endless photocopying (and the mocking you took for it at work!), to the breaks you made me take, to preoccupying the puppy so he would not step on the keys anymore, to just sitting by me as I worked on this, I am so grateful to you. I love you very, very much. And to our puppy Blue, you are a wonderful little addition. Thank you for not chewing all of my data, I know you wanted to.

Finally, a special thanks to my in-laws, the Schnepf family, especially my mother-in-law Patricia, for constantly cheering me on and being excited for me every step of the way. I am very lucky to be a part of your family and I greatly appreciate the interest and support you have given to me since ever since my first trip out to "the island". We would not be celebrating this one at Collins!

I have many friends who have been invaluable in this process. Becky, I could not be luckier to have been in graduate school with you. You are one of the kindest people I

know. I do not think I could have gotten through all our “milestones” without your friendship. Canice, having your lead to follow was such a pleasure and an honor. You made everything so much easier for me, not to mention so much fun. Thank you for all your advice, kindness, intelligence, and the occasional therapy session as well. Meghan, as I always write in my emails, you are the best. I could not imagine being able to finish this without all your help. You are so busy and I appreciate the time you put into this very much. You do not know how hard it was not to ask you incessantly for help because of how extremely talented and reliable you are.

I am indebted to my outstanding mentors for their invaluable support and friendship over the past several years. I had hoped to meet someone who was close enough to being a graduate student that they remembered what it was like but far enough away that I’d have an example to follow. I was fortunate enough to meet such a person early on. Dr. Melissa Alderfer, thank you for all the advice along the way and most importantly for the example you set. You are such an impressive researcher but that may even be exceeded by your kindness and humility. I hope to have the pleasure of working with you many, many more times.

I would like to extend a very special thanks to the mentor I have known the longest, Dr. Sigal Barsade. I am so fortunate to have you as my “job fairy.” It has been such a pleasure to work on your many projects, and I sincerely hope I can continue to do so for many years to come. Of course underscoring all of this is just how much your friendship and that of your family has meant to me.

Dr. Diana Cordova, I thank you very much for inspiring me to pursue a career in psychology. You are a truly an outstanding teacher. I am so touched and grateful for your

confidence in my research.

I'd like to thank Dr. Steve Simms for helping me grow as a clinician as you were instrumental in my feeling more at ease in our profession. I'd also like to thank Dr. Katharine Loeb and Dr. Eyal Shemesh, my most recent in a series of wonderful mentors. You both have been so helpful and supportive since my start just a little while ago. I am very excited about my time to come with you!

And last but not least, I'd like to thank my mentor Dr. Michael Lowe. Michael, I still remember my interview with you and how kind and excited about your work you were. That's exactly the environment you fostered during my time in the lab and I am extremely fortunate to have had such a wonderful experience. Thank you for the endless opportunities you provided me, the example you set, and mostly for always making coming to work a joy. I miss being in your lab very much and I sincerely hope that was just the beginning of many years of collaboration and friendship.

I'd like to extend a warm thank you to the Society for the Psychological Study of Social Issues (SPSSI) for their financial contribution to this project. The auspices of this organization are very important to me and I am extremely honored to receive a Grant-In-Aid for my doctoral research.

And finally a very special thanks to my outstanding dissertation committee: Dr. Mariana Chilton, Dr. Gunner Furgueson, Dr. James Herbert, Dr. Tanja Kral, and of course the Chair, Dr. Michael Lowe. Thanks also to Dr. Lynn Riddell who was initially on the committee but was unable to participate in the defense as she moved overseas. The dissertation process was extremely fruitful and enjoyable thanks to the contributions of this group I was very fortunate to work with. I greatly appreciate your input and efforts.

## Table of Contents

List of Tables .....	viii
List of Figures .....	ix
Abstract.....	x
Literature Review.....	1
Introduction.....	1
The rising cost of obesity .....	1
What constitutes weight control efforts? .....	3
Two-dimensional model of weight control behavior.....	4
Understanding variation along both weight control dimensions .....	7
Other variables related to weight control.....	8
Relation of SES to weight control.....	9
Motivation to lose weight .....	10
Prochaska’s transtheoretical model.....	10
Reactance theory .....	13
Correlates of the two dimensions.....	14
Severity of the obesity problem.....	14
Psychological distress.....	15
Obesity related quality of life .....	15
Competing health concerns versus body image.....	18
Knowledge about obesity .....	19
Hypotheses & goals .....	19
Methods.....	20

Participants .....	20
Procedures.....	22
Measures .....	22
Independent Measures .....	22
Dependent Measures.....	25
Estimation of power.....	29
Results.....	30
Preliminary analyses .....	30
Primary analyses .....	31
Help-seeking as a categorical variable .....	31
Help-seeking as a continuous variable .....	34
Exploratory analyses .....	36
Qualitative analysis .....	38
Discussion.....	40
Self-agency dimension.....	40
Correlates of help-seeking as a dimension.....	41
Help-seeking as a dimension .....	41
The role of SES in help-seeking .....	42
Clinical significance.....	43
Limitations .....	45
Conclusion & Future directions .....	46
References.....	48
Appendix A: Tables & figures.....	55



Appendix B: Participants' responses to qualitative item .....65  
Vita.....76

## List of Tables

1. Table 1: Demographic characteristics of combined sample .....	57
2. Table 2: Percentage of participants who tried each behavior .....	59
3. Table 3: Means and stand deviations of all measures by help-seeking level.....	60
4. Table 4: Obesity Knowledge Quiz: Percentage of participants who correctly answered each item .....	61
5. Table 5: Analysis of variance for predictors of help-seeking level .....	63
6. Table 6: Linear regressions to predict help-seeking level .....	64

## List of Figures

1. Figure 1: A two-dimensional conceptualization of weight control and accompanying examples .....56
2. Figure 2: Percentage of participants in each SES category .....58
3. Figure 3: Co-morbid medical conditions in this sample.....62

**Abstract**

Taking Action to Lose Weight: Toward an Understanding of Individual Differences

Rachel A. Annunziato

Michael R. Lowe, Ph.D.

The problem of obesity has reached epidemic proportions. Currently, roughly two-thirds of all adult Americans are overweight or obese. Of these, 40% are not engaging in weight control. Little is known about these individuals except that they are at high-risk for a variety of medical comorbidities. A greater understanding of these persons is imperative for ultimately encouraging their initiation of weight control practices. Among those who are addressing their obesity, the prominent strategy employed is dieting on one's own. Previous research has studied overweight people who seek help with weight control versus those who do not. Help-seeking has been associated with higher levels of psychological distress and more severe obesity. This classification however neglects individuals attempting other weight control methods besides seeking outside assistance. The present study proposes a two-dimensional system for understanding varying levels of weight control behavior. A help-seeking dimension is proposed that captures a gradation of help-seeking behaviors. The second dimension aims at classifying individuals on a self-agency dimension. This dimension explores how individuals' perception of themselves as agents of change influences their weight control. Socioeconomic status (SES) is hypothesized as a potential moderator of both dimensions. The present study aims to demonstrate possible correlates of both dimensions, including psychological distress, disordered eating behavior, obesity-related knowledge, body-image, and comorbid medical risks. By uncovering differences in these variables across the two

dimensions, our understanding of what factors contribute to engagement in varying levels of weight control behaviors will be augmented.



Obesity is a risk factor for a number of adverse psychosocial and medical outcomes. It is a disease severely stigmatized both in our own and other cultures where obese individuals are subject to prejudice and discrimination (Wadden & Stunkard, 1993). Obesity raises the risk of several serious medical conditions including diabetes, hypertension, hyperlipidemia, cardiovascular disease, stroke, and certain cancers (Pi-Sunyer, 1993). Obesity is now viewed as a chronic condition that is unlikely to improve without long-term efforts at weight management. Although in the early 1990s the Healthy People 2000 agenda set a goal of a 20% prevalence of obesity by the year 2000, the prevalence of obesity has instead been increasing dramatically. In the United States, 34% of adults are overweight while an additional 31% are obese (Flegal et al, 2002). Taken together, this means that roughly 65% of adult Americans weigh more than is standard for their height and age.

Blackburn (1995) reviewed evidence indicating that modest (approximately 10%) weight loss in obese individuals produces medically significant improvements in a variety of risk factors. The potential benefits of improved weight management have been reviewed by Eckel (1997), who stated that weight reduction appears efficacious in reducing risks of coronary heart disease and congestive heart failure and potentially preventing heart disease in obese patients. When it comes to diet and cardiovascular disease prevention, Van Horn and Kavey (1997) have suggested that obesity may be the number one obstacle.

#### The rising cost of obesity

The scope of the obesity problem yields a tremendous cost both in economic and health indices. Direct health care costs are estimated to exceed \$51 billion annually (Wolf

& Colditz, 1998). Direct expenditures associated with obesity are for diagnosis and treatment of related disease. When indirect costs are included, these figures balloon even higher. These costs include, but are not limited to, loss of productivity, early retirement, and more covert factors like decreased fertility and increased asthma complications. In women, it is speculated that nearly 10% of sick leave and disability pension cases are associated with obesity and obesity-related conditions (Field, Barnoya, & Colditz, 2002). Perhaps what is most alarming is that these figures describe obesity alone and do not reflect the additional cost incurred when overweight<sup>1</sup> people are accounted for as well. To head off this spiraling process, substantial money and effort has been devoted to developing and improving treatment for obesity. There are a plethora of methods for facilitating weight loss (e.g., commercial programs, fitness plans, behavioral modification, pharmacological treatment, and the most invasive but effective option, surgery). With the exception of surgery, no treatment has been found that can produce long term weight loss maintenance (Perri, 1998).

From a health perspective, an even bigger, though less recognized problem, exists. This is that all the treated obese people taken together still represent less than half of the obese population (Valdez, Gregg, & Williamson, 2002). As Blackburn (2002, p. 485) grimly points out, “untreated obesity typically ends in morbidity, disability, hospitalization, and mortality from cardiovascular and diabetic complications.” Very little is known about this majority of obese people who are not participating in formal weight loss programs, many of whom may be engaging in little or no weight control efforts.

---

<sup>1</sup>The use of the term “overweight” refers to all individuals with a Body Mass Index greater than 25.



### What constitutes weight control efforts?

Overweight people generally have three options when it comes to “doing something” about their weight: not trying at all; trying on “one’s own” (i.e., without seeking any specific information, program, or substance), and trying by taking some specific action (e.g., going to a hypnotist, reading a diet book, joining a commercial program). In the United States, approximately 60% of overweight or obese people who accurately perceive themselves as such are trying to lose weight (e.g., either losing weight on their own or taking some specific action) (Horm & Anderson, 1993). This finding is based on a nationally representative sample of the U.S. population (sampled in the 1990 National Health Interview Survey). A similar figure has been reported in England; a large-scale study by Wardle and Johnson (2002) reports one third of overweight or obese women and more than half of the men surveyed were not engaging in any weight control behaviors, meaning again, that roughly 60% are taking action. In this study, data were collected on a sample of 1894 adults as part of the Office of National Statistics’ Omnibus Survey. For women, 50.9% of overweight women and 48.2% of obese women who were attempting weight control reported that they were doing so without outside assistance. Therefore, a majority is “trying” to control their weight but may actually be taking few if any behavioral steps to do so. In both these studies then, the most prominent weight loss strategy was dieting on one’s own.

As the scope of the problem of obesity and its co-morbid risks becomes evident, understanding what variables contribute to treatment success has become a major focus of current research. After reviewing the figures as to the proportion of overweight and obesity people who are actively engaging in weight control efforts however, it becomes

apparent that it is important to understand this aspect of the obesity problem. In order to develop ways to encourage obese people to engage in weight control efforts, it is important to understand how people who are attempting to control their weight differ from those who are not.

There are a number of possible factors contributing to these differences:

- ❑ Some obese people simply may not view the benefits of weight control as worth the sacrifice.
- ❑ Alternatively, some people might not know what the health benefits are – whether in the present or to avoid health problems in the future.
- ❑ Overweight people who neither seek help nor assume responsibility for behavior change might be less informed than others as to what the dangers are of their excess weight.
- ❑ Since at least part of the motivation for weight control is based on level of body dissatisfaction, this could be an additional factor.

Perhaps above and beyond these specific correlates of weight control behavior, there may be more global constructs that could help conceptualize the most important factors affecting the decision of whether and how to lose weight. Such a framework is proposed below.

#### Two-dimensional model of weight control behavior

In much of the sparse literature on untreated obese persons, the classification used to distinguish those who are engaging in weight control is whether or not one is seeking outside help. This classification negates a wide-range of behaviors in between. Therefore, a dimensional approach referred to as “help-seeking” is proposed. Joining a weight loss

program at a university clinic or a commercial one such as Weight Watchers® are examples of high levels of help-seeking behavior. Seeing a hypnotist or looking for dieting advice on the Internet represent lower levels of help-seeking. This distinction still neglects the significant number of overweight people who are partaking in weight control on their own. The help-seeking dimension does not account well for those who may be engaging in weight control behaviors but are not seeking outside help. Therefore a second dimension is needed.

This dimension is referred to here as “agency”. Bandura (2000) describes “direct personal agency” as the aspect of agency that relies on one’s self to secure desired outcomes. Self-agency is a dimension ranging from reliance on one’s self, to reliance on influences outside the self when it comes to securing such outcomes. Self-agency, then, refers to where on this dimension the agent of change lies. In terms of weight control, agency can be classified as either internal or external, representing the two poles of this dimension. Persons with an internal agency orientation believe the onus to change their weight lies with them. Internal agency characterizes a person who relies on their own “inherent” abilities and motivation to bring about change; willpower would be a primary example of this approach. In contrast, persons with an orientation towards external agency rely on outside influences when it comes to weight control (e.g., they look to change agents outside themselves). The self-agency dimension is only relevant to those who take some action vis-à-vis their weight. There is also a group of people for whom the concept of self-agency is essentially irrelevant because they do not take any initiative to do anything to improve their weight, whether self-directed or other-directed.

Williams et al (1996) and others have elucidated the reasoning for why people

decide to seek treatment versus not seek treatment for obesity using a similar approach. According to this model, people will decide to lose weight when: 1) they believe weight loss will reduce future health-related risks; 2) they have an internal locus of control such that they believe their engagement in specific behaviors (e.g., reducing caloric intake, exercise) will yield significant weight loss; and 3) they are confident that they can execute such behaviors, encompassing the idea of self-efficacy. However, Williams et al traced their reasoning for adjusting the second tenet to better fit the domain of initiating weight control. Instead of a locus of control contributing to the target behavior, they propose that a locus of causality is more descriptive of the cognitions intertwined in this decision-making. Whereas locus of control implies an influence over the outcome of the behavior, locus of causality refers to the perceived source of initiation, with a dichotomy of autonomous (e.g., derived from within the person) or controlled (e.g., originating from outside the persons). This concept resonates with the proposed second dimension.

For heuristic purposes the two dimensions are described as conceptually independent even though they undoubtedly are not in practice. For example, weight control tactics that involve a high degree of help-seeking will usually, though not always, also involve greater reliance on external agency. For example, self-initiated use of appetite suppressants reflects a moderate degree of help-seeking and a high degree of external agency. Using meal replacements also involves a moderate level of help-seeking but in contrast a higher degree of internal agency. Self-initiated diet and exercise plans also reflect high internal agency but in this case low levels of help-seeking. These examples illustrate that help-seeking and agency together provide a different though overlapping system for understanding weight control inception. Figure 1 illustrates these

and other examples of both dimensions.

Interactions between help-seeking and agency will occur at all levels of both dimensions. For example, some people may join a weight loss program with a strong orientation toward external agency, and therefore expect that the program and their group leader will show them how to lose weight. Others may join the program and view it more as a consultant whose advice will or will not be incorporated, depending on the member's judgment and preferences. Furthermore, there are persons with moderate levels of both help-seeking and internal agency. An example of this would be following the Atkins diet, which involves seeking external help (the advice from the book) but a considerable degree of self-agency (since the dieter must implement on a daily basis a variety of nutritional modifications in their diet). And there are those individuals who do nothing to control their weight. Such individuals are not ratable on agency which implies at least some effort to change, but they are on help-seeking (e.g., they are at the lowest level).

#### Understanding variation along both weight control dimensions

The aim of the present study is to uncover more about the differences across these proposed dimensions. The two dimensions will be considered separately with the primary goal being to examine how people who differ on each dimension (e.g., high vs. low help-seekers; internal vs. external agency) differ on a variety of relevant demographic and psychological variables. By studying people who exhibit varying degrees of each dimension, it may facilitate the field's understanding of why only some individuals engage in weight control activities and why they choose particular weight control alternatives from the plethora of options available. One class of variables that might explain differences on the two dimensions in this model are demographic ones such as

ethnicity, SES, and gender.

#### Other variables related to weight control

There are a number of variables that are related to treatment engagement including ethnicity, age, gender, and SES. Of all the variables that might predict the dimensions to be studied, the one examined here is SES. Because SES is the focus, this does not mean other variables (e.g., age) were excluded as potential covariates of the findings attained. Recruitment targeted participants from widely varying SES levels. Participants were selected from a population that is about equally divided into Caucasians and African-Americans. In the present study, we will confine the scope of our aims to exploring differences as a function of SES level. However, possible ethnic differences will be explored in further study of this dataset, in particular whether the predictor variables are similar within the two ethnicities.

The present study did not examine differences in help-seeking by gender and instead only women were included as participants. Previous research on help-seeking for weight control has largely been confined to women. The main reason for this is that men are less likely to engage in weight control behaviors (Wolfe & Smith, 2002, Wardle et al, 2004). It has been hypothesized, and in some cases shown, that men are more likely to diet for health reasons rather than aesthetic concerns (Hankey, Leslie, & Lean, 2002). Furthermore, one study (Wolfe & Smith, 2002) actually examined why men are reluctant to use weight management programs. Their respondents overall desired individualized programs stressing physical activity rather than limiting food intake. They again found men were largely interested in weight control as a function of health concerns. Because men and women may in fact exhibit very different correlates of help-seeking behavior,

this initial study is focusing on men.

### Relation of SES to weight control

SES status alone has ramifications on both the energy intake and expenditure sides of the weight balance equation. A recent study (Ball, Mishra, & Crawford, 2003) examined data gathered from 8667 adults who participated in the 1995 Australian National Health and Nutrition Survey. The authors hypothesized that social factors would predict engagement in health behaviors. They used a sophisticated, multidimensional measure of social status developed from their previous work. Results indicated that women of “lower employment” (e.g., part-time workers, lower status occupations) had higher BMIs when controlling for health behaviors. Furthermore, social factors did indeed serve as moderators in determining the relationship between BMI and some health behaviors. Kumanyika (2002) traces physical, economic, and sociocultural influences on both food intake and physical activity. The tandem of income and education are powerful mediators of lifestyle choices made as they affect where one lives, the resources one has to expend on health, the extent to which one has acquired knowledge about the causes of obesity and the health risks associated with it, and the amount of time one can devote to engaging in healthy behaviors. For example, one’s neighborhood determines whether it is safe to exercise outdoors, whether there are affordable recreational facilities available, the proximity of fast food restaurants, and the food choices at grocery stores. These examples are just a sampling of major areas impacted by SES. Consider a scenario likely to be fairly typical for a woman of low SES. She works long hours to contribute to her household’s income. She lives in a neighborhood where it is unsafe to go for walks during the hours she could potentially do so. She cannot afford

to join a gym. She also is confined to what she has coupons for and what's low-priced and can be purchased in large quantities at the grocery store. These items are usually not the more expensive, reduced or low-fat foods. To save time, she often goes to nearby fast-food restaurants to bring home filling, affordable meals for her husband and children. Without even exploring cultural factors, it is clear that one's SES plays a major role in eating habits and energy expenditure and may substantially decrease the odds of attempting weight control.

There are further considerations that SES influences. For instance, the woman in the above example would likely have difficulty initiating her own weight control plan given time, finances, and barriers to exercise but she also might find organized treatment undesirable as Kumanyika (2002) addresses. And finally, she may well not consider her weight problem as salient. At any given BMI, body dissatisfaction is positively correlated with SES, which is very relevant to motivation for weight control (Kumanyika, 2002). Because it appears likely that SES greatly moderates both help-seeking and motivation to lose weight, it was important to study a range of SES levels to see if it interacts with either the help-seeking or agency dimensions.

### Motivation to lose weight

#### Prochaska's transtheoretical model

Motivation to lose weight underlies both help-seeking and self agency.

Prochaska's transtheoretical model, as summarized in a review chapter from 1998, offers an integrative framework for understanding how people make steps towards changing health-related behaviors. Prochaska and colleagues (Rossi et al, 1995) specifically applied his model to weight control. This conceptualization lays out six stages of change



that are traversed as one grows more serious about practicing weight control behaviors. These stages are the same across health domains (e.g., smoking cessation, weight control, etc): precontemplation, contemplation, preparation, action, maintenance, and termination. Of particular interest are the “processes of change” which are the independent variables that dictate progression across the stages. Processes of change include both covert and overt and experiential and behavioral strategies that people use to move between the stages. Covert, experiential activities, which others have defined as cognitive-affective factors (Geller, Cockell, & Drab, 2001), are more characteristic of the earlier stages of change while more overt, behavioral approaches seem to arise as one progresses into higher levels. The model also details the “intervening variables” that determine whether or not a process of change will amount to a stage change. These important dependent variables include decisional balance, self-efficacy, and situational temptations.

The path from the earlier stages of precontemplation and contemplation towards more action-oriented stages are the most relevant to the present study. The crux of Prochaska and colleagues’ work is that interventions commonly employed in clinical settings entail more action-taking than most of the target population is ready to initiate. In 1994, Rossi et al applied the transtheoretical model to weight control in a community sample to test this idea. They first reviewed the processes of change that have been identified by empirical findings on smoking cessation. A sampling of these constructs is presented below as delineated by Prochaska et al’s (1992) work.

*Covert, experiential activities*

- ◆ Environmental reevaluation- consideration and assessment of how the problem behavior affects the physical and social environment.

- ◆ Self-reevaluation- emotional and cognitive reappraisal of value by the individual with respect to the problem behavior.

*Overt, behavioral strategies*

- ◆ Counterconditioning- substitution of alternatives for the problem behavior (e.g., relaxation, exercise).
- ◆ Helping relationships- trusting, accepting, and using the support of others during attempts to change the problem behavior (e.g., social support, self help groups, group support).
- ◆ Self-liberation- choice and commitment to change the problem behavior, including belief in the ability to change.
- ◆ Stimulus control- control of situations and other causes that trigger the problem behavior (e.g., removing fatty foods from the house).
- ◆ Interpersonal systems control- avoiding people or social situations that encourage the problem behavior (e.g., not going out to eat).
- ◆ Use of substances- use of prescribed or nonprescribed medications (e.g., appetite suppressants).

Rossi's group (1994) found that weight control did indeed exhibit a similar pattern to smoking cessation in that behavioral strategies were more likely to be adopted in later stages of change, whereas experiential concepts were indicative of the earlier levels. Therefore, the work of Rossi et al (1995) demonstrated that the tenets of the transtheoretical model are relevant to weight control. The stage persons are in may be associated with what type or level of weight control behavior they are attempting. Currently, the model's scope is being widened to perhaps explaining the mechanism of

change behind other refractory health problems such as eating disorders (Sullivan & Terris, 2001). Such pursuits should further strengthen its utility.

### Reactance theory

The work of Prochaska, Rossi, and others nicely describes possible reasons why motivation to lose weight may not lead to clear-cut action and offers a model that illustrates what lack of motivation translates to in cognitive-behavioral terms. This is “reactance theory” as originally postulated by Brehm (1966) and more recently updated by Fogarty (1997).

Reactance theory (Fogarty, 1997) attempts to explain why people often do the opposite of what they are asked to do or what they purport doing. According to Williamson et al (1992) 40% of over 10,000 women surveyed reported that they were currently trying to lose weight. Given the tremendous focus on the need for people to lose weight and the stigma associated with overweight, this makes sense. This figure, however, seems incongruent with statistics showing that at least 65% of Americans are overweight (Flegal et al, 2002). If so many people are trying to lose weight, how come so many people remain overweight? Reactance theory addresses this question by proposing that “a perceived threat to an individual’s freedom generates a motivational state aimed at recapturing the affected freedom and preventing the loss of others” (Fogarty, 1997, p 1277). Clearly, the decision to lose weight impacts day-to-day choices such as what to eat, whether or not to exercise, where to go out, etc. Weight control then is likely the sort of decision that feels threatening to one’s sense of control over things taken for granted and greatly enjoyed. Such salient concerns could be a trigger for the type of paradox described in reactance theory. Overweight people may want to lose weight but be

hampered by their own protective mechanisms aimed at maintaining autonomy in terms of related lifestyle activities. Reactance could easily be reconciled with precontemplation and may be a major tenet of that stage of Prochaska et al's (1998) work.

#### Correlates of the two dimensions

The broad concept of motivation certainly encompasses a gamut of thoughts, feelings, and other factors that coalesce to determine decisions. In this section, a review of more explicit factors that appear pivotal to initiating weight control will be undertaken. By beginning to understand these factors, potential areas relevant to untreated overweight people might be identified.

#### Severity of the obesity problem

In the present study, correlates were reviewed that pertained to the two dimensions. A review of the literature underscores the uncharted nature of this area. There are some studies that examine the differences between treatment seekers and untreated overweight people. As Wadden and Osei (2002) point out, current popular weight loss interventions can only benefit those who seek them out; the majority of obese individuals do not. People who are not trying to control their weight are in fact likely to show at least as much weight gain as generally found in the population. For example Rothacker (2000) compared a sample of overweight persons dieting on their own using meal replacements with a matched, overweight control group (who did not go on meal replacements) for 5 years. The control group gained about 6 kgs during this time. On one hand, it seems likely that those who are not trying to lose weight and those who are trying to lose weight on their own are not going to be very successful; on the other hand, there is also evidence, reviewed below, that those who do attend programs have more treatment-

resistant obesity, are more emotionally distressed, and are more likely to binge eat. One conclusion is that perhaps those who do not seek treatment do not need as much outside help.

#### Psychological distress

Fitzgibbon, Stolley, and Kirschenbaum (1994) examined whether obese people who seek treatment are different from those who do not in order to better understand why many treatment programs do not succeed in the long term. Their thesis was that treatment seekers are more emotionally distressed than untreated overweight people. This heightened level of psychological symptoms may not be addressed in standard treatment protocols. The authors divided their sample of 547 into different levels of treatment seeking: treatment seekers, untreated obese people, and normal-weight controls. Initially they found that treatment seekers weighed significantly more than untreated obese, were significantly older, more educated, and were more likely to be Caucasian. Because these three groups were largely differentiated by demographic variables, they created subgroups from them matched on demographic variables. Therefore, they could study what variables differentiated the groups above and beyond demographic factors. Please note that very few men participated in the study so it is unclear whether the above results generalize across gender. These authors found that across the matched groups, treatment seekers exhibited significantly higher levels of binge eating and psychopathology than the other two groups.

#### Obesity related quality of life

A recent study by Kolotkin, Crosby, and Williams (2002) supports that distress and dissatisfaction is associated with help-seeking. This work compared scores on the Impact

of Weight on Quality of Life-Lite (IWQOL-Lite) questionnaire among overweight/obese individuals who varied on treatment seeking status. The five groups representing a continuum of treatment-seeking intensity were: overweight/ obese community volunteers who were not enrolled in weight-loss treatment, clinical weight-loss drug trial participants (infrequent meetings), outpatient weight-loss program/ studies participants (weekly meetings), participants in a day treatment program for obesity, and gastric bypass patients. This range represents lowest to highest levels of external help-seeking.

The authors found that as treatment modality intensified (i.e., from non-treatment seeking community volunteers to people receiving gastric bypass surgery), scores on the instrument decreased signifying poorer health related quality of life. Furthermore, in some treatment groups, ethnicity and gender moderated this relationship. As in the Fitzgibbon, Stolley, and Kirschenbaum (1994) study, BMI was proportional to the intensity of treatment sought. (i.e., non-treatment seeking community volunteers had the lowest BMI while surgery patients had the highest).

Fontaine, Bartlett, and Barofsky (2000) found similar results in their study of health-related quality of life (HRQL) in persons seeking versus not seeking treatment for obesity. They studied 323 men and women seeking treatment at university-based weight management programs versus 89 persons currently not seeking treatment. This comparison sample was comprised of volunteers recruited at lunchtime from a hospital setting. The results indicated that treatment seekers were more likely to be older, heavier, Caucasian, married, in white-collar employment, and to have higher rates of health problems (e.g., diabetes, hypertension, and pain). Overall, treatment seekers demonstrated the expected higher level of HRQL impairment.

Taken together, these three studies offer two important implications. One, they suggest that treatment programs are by and large attracting those at the upper end of severity defined in terms of BMI, physical complaints, emotional distress, and binge eating. And two, it appears that demographic variables such as SES are associated with lower levels of external help seeking. This again underscores the rationale for studying SES when trying to discern what variables are correlated with help-seeking.

There seem to be distinct groups more likely to seek help than others. Caucasian women of higher SES experiencing more psychological distress, poorer obesity related quality of life, and a higher BMI turn to weight loss programs most often. Two conclusions can be drawn from this. One is that holding other factors equal, those with “worse” obesity (e.g., as measured by BMI and distress and dissatisfaction accompanying obesity) are more likely to try to control their weight and more likely to seek outside help. But, second (and likely countering the first) is that holding other factors constant formal programs are likely more effective than self-help (Lowe, Kovach, & Phelan, 2001) but since they also likely attract individuals with “worse” obesity, the benefits of the formal program may be at least partially cancelled out by the severity of the obesity problem in those who enroll. Therefore, the large percentage of people who are dieting on their own as documented above by Horm & Anderson (1993) and Wardle and Johnson (2002) likely have less severe obesity. Further support for this was derived from Tinker and Tucker (1997). They studied an untreated obese group versus a group of overweight people who dieted by themselves to normal weight. The recovered overweight group had spent more time since puberty in the normal weight range than the untreated group suggesting that the untreated group had a more refractory, long-standing

history of being overweight, whereas the self-treated group had a less severe problem to begin with.

Finally, this study (Tinker & Tucker, 1997) also examined the relevance of help-seeking in persons besides those who have joined organized programs. The authors described the sentiments expressed by both groups for why they would not seek organized treatment. These barriers to treatment initiation included cost and fears regarding treatment procedures (e.g., being weighed, disclosing food intake). In conclusion then, there appear to be measurable psychological correlates of who does versus does not seek help. There also appear to be objections to factors associated with seeking help (e.g., cost). Therefore, some people who are motivated to address their weight may elect to do this by themselves rather than seeking outside assistance. For this reason, again, the additional agency dimension is necessary. Self-agency aims to define this other important aspect of weight control behavior by covering a dimension not sufficiently addressed by the help-seeking dimension. There appears to be a separate, largely negated group of people who do engage in weight control but do so on their own rather than by turning to outside help.

#### Competing health concerns versus body image

A major dichotomy in assessing one's decision to lose weight is whether the impetus was health-related or based on aesthetic concerns. Brink and Ferguson (1998) conducted exploratory research that studied this question. They interviewed a large sample of Caucasian men and women whom they divided into different categories based on weight and weight loss history. They found that attractiveness and health were the two major motivators for attempting weight loss in both men and women. This result suggests



the possibility that for the scores of people who express interest in losing weight, the major differentiating factor between those who do and do not partake in some kind of formal weight control program could be salient health concerns (which in this case were raised by physicians). As much as people cite body dissatisfaction as a reason to lose weight, it may not be as significant as perceived health status in negotiating this decision.

#### Knowledge about obesity

Johansson, Granlund, and Sojka (1986) studied knowledge of obesity related constructs (e.g., dieting and nutrition) in a sample of male and female participants with a previous history of dieting. A unique aspect of this sort of pilot research was that they included a control group with no history of overweight. They found that the both groups believed their level of knowledge was significantly greater than it actually was, though the control group underestimated less. Therefore, despite frequent dieting, their understanding of concepts key to dieting success was weak. It is likely then that history of dieting does not preclude an understanding of features associated with dieting and/ or understanding of obesity. Because knowledge level is low in this sample of dieters, who likely have acquired knowledge, individuals trying to diet on their own may ultimately struggle to do so.

#### Hypotheses & goals

There are a variety of potential variables that contribute to one's engagement in weight control efforts. Previous studies have linked help-seeking with more severe obesity. The primary hypothesis in the present study is that higher levels of help-seeking will be associated with a number of variables related to the severity of obesity. These include higher levels of disordered eating (e.g., bingeing, disinhibition), restrained eating,

hunger, psychological distress, poorer body-image, greater prevalence of medical comorbidities, and a greater degree of obesity-related knowledge. This hypothesis is predicted both when measuring help-seeking as a categorical variable (e.g., subdividing level of help-seeking behavior into high or low levels) and when examining it as a continuous variable.

The self-agency dimension has not yet been tested in the literature. Therefore all analyses of internal versus external agency are considered exploratory. Specific predictions are difficult to make, but in general it is expected that external (vs. internal) agency will be associated with more severe obesity-related problems. Furthermore, the help-seeking and self-agency dimensions will be significantly correlated. The more moderate to weak the correlation, the greater chance there will be for differential prediction. Finally, SES may emerge as an additional predictor for both the help-seeking and self-agency dimensions.

## Methods

### Participants

One hundred twenty female participants were recruited. Demographic characteristics of the sample are presented Table 1 (please see Appendix A for all tables and figures). A majority of the participants were African-American (58.3%) and single (52.5%), with a mean age of 39.5. These figures are divergent from the United States as a whole where 12.9% of the population is African-American and 52.1% are married (U.S. Census Bureau, 2000). In the present sample, 60% of participants completed education at least through partial college or specialized training. In the United States, 48.9% of the population attained this education level (U.S. Census Bureau, 2000). The mean SES level

of the sample was 38.69 (on a scale of 9-66). Figure 1 depicts the SES breakdown by category of the present sample. The majority of participants were in the fourth Hollingshead category (of five), however all categories were represented. The mean BMI of participants was 33.79. Overall, these data suggests a significantly overweight sample with wide variability in SES was attained.

Participants were recruited from community settings and offered either monetary compensation or attendance at a seminar on weight control and nutrition as an incentive for participation. Participants were first drawn from a pool of those who had expressed interest in a workplace based intervention for the prevention of weight gain being held in the Hahnemann Hospital cafeteria but who had not enrolled in this project. Potential participants were contacted via email and provided information about the present study. 52 of the 88 individuals contacted agreed to participate in the present study. Of these, 34 (65%) completed the questionnaire packet.

For the next wave of recruitment, an effort was made to reach a larger pool of participants from a wide range in terms of SES. Rohm Young et al (2001) implemented a similar recruitment strategy. Their paradigm was comparable to some aspects of the present study in that they were seeking exploratory information for developing interventions directed at weight control for African-American women. Their sample was derived from Baltimore, a city similar in demographics to Philadelphia. They posted flyers in various high-traffic locations (e.g., shopping centers, neighborhoods, worksites) and attained a reasonable sample size for their aims. In the present study, an ad was placed in the *Metro* (a newspaper offered free of charge on all SEPTA vehicles and stations). The ad (see Appendix B) was designed to emphasize the monetary

compensation of the study in an effort to minimize the response by individuals high on the help-seeking dimension. Three hundred people responded to the ad and the first 113 were enrolled in the present study. Of these, 86 (76%) completed the questionnaire packet. The combined 120 participants overwhelmingly selected monetary compensation over the seminar as remuneration (112 selected payment, while eight selected attending the seminar).

### Procedures

Participants were asked to fill out a packet of questionnaires, which were completed at home and returned via mail. Task completion took approximately one hour. Participants who agreed to these requirements signed an informed consent form. The Drexel University Nonmedical Institutional Review Board approved all procedures, as well as the consent form. The principal investigator monitored how many people called about the study, how many people received packets, and how many packets were returned.

### Measures

#### Independent variables

##### *Help-seeking*

Help-seeking behavior was measured both categorically and continuously. Participants were asked to indicate first if they had ever tried to lose weight; then those who said “yes” were asked to indicate what behaviors they had tried to control their weight. French and Jeffrey (1997) used a similar approach to measure their independent variable, which was the construct “dieting practices.” The list used in the present study was adapted from French and Jeffrey with additions. Participants were finally asked to

indicate how often they had tried each behavior in their lifetime.

Based on their responses, as has been previously done, participants were grouped into one of two categories, low help-seeking or high help-seeking. The low help-seeking category consisted of those individuals who had either not engaged in dieting (e.g., they answered “no” to “have you ever tried to lose weight”), those who had dieted without relying on any assistance (e.g., following a diet book, cutting calories, etc), and individuals who sought help, but not from a formal program, a lesser degree (e.g., using medications, consulting a specialist on diet or exercise). The high help-seeking category consisted of individuals who have sought help from a professional (e.g., a physician, personal trainer, etc) or an organization (e.g., Weight Watchers, Overeaters Anonymous, etc).

Participants also received a continuous score on the help-seeking measure. Scores were calculated as follows. Each item on the scale was given a weight that was multiplied by the number of times tried. Any high help-seeking behavior was weighted a “3” and then multiplied by the number of times it has been tried. Moderate help-seeking behaviors were weighted as a “2” then multiplied by the number of times tried. And finally, low help-seeking behaviors were weighted as “1” and then multiplied by the number of times tried. The total score of all items was then calculated. For this division into three categories, the high help-seeking group stayed the same. The low help-seeking group consisted of individuals who had not taken action to lose weight or they had without assistance. The moderate help-seeking items were those that involved help-seeking but to a lesser degree (e.g., seeking help from a source outside themselves). This category included seeking *advice* from a personal trainer or exercise expert, whereas

actually hiring an expert in this area was included in the high help-seeking group. These categories were determined a priori. The assignment of help-seeking items to these categories was further rated by two doctoral level clinicians specializing in obesity and nutrition research and an advanced graduate student in this area. Interrater reliability was high,  $r = .86, p < .01$  indicating agreement on the selection of items in each category. Participants were grouped into the highest level of help-seeking they indicated trying (e.g., if they indicated a combination of low and high help-seeking behaviors, they were classified as engaging in high help-seeking).

### *Self-agency*

Self-agency was measured using three approaches. The first was participants' rating on the following scale:

*Please read all of the choices below before choosing the ONE that best describes you. In the past when I have tried to lose weight,*

- 1 = I have always relied on either some kind of diet aid (e.g., diet pills, herbal supplements, hypnosis, etc) or some kind of diet program (Overeaters Anonymous, Weight Watchers, reading and closely following a diet book, etc).
- 2 = I have usually relied on some kind of diet aid or diet program.
- 3 = I have relied equally on my own efforts and some kind of diet aid or diet program.
- 4 = I have usually relied on my own efforts to develop the weight loss plan I followed.
- 5 = I have always relied on my own efforts to develop the weight loss plan I followed.

The second measure of self-agency was derived from the work on weight locus of control by Saltzer (1982), who developed a brief measure on the subject. The following four-item scale was given to participants. This scale represents a slightly revised version of the four Saltzer items to better reflect self-agency.

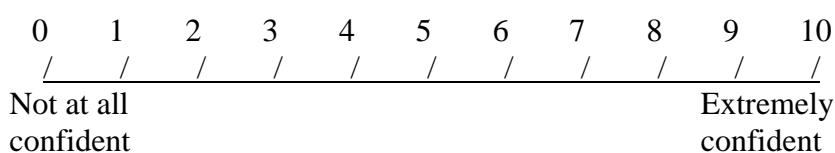
*Please use the following scale when answering the following four questions.*

Strongly Disagree						Strongly Agree
1	2	3	4	5	6	

Whether I gain, lose or maintain my weight is entirely up to me.  
 Being at the right weight for me is largely a matter of the diet aid I rely on.  
 No matter what I intend to do, if I gain or lose weight, or stay the same in the near future,  
 it is going to be the result of the diet aid I use.  
 If I rely on my own efforts, I can control my weight in the way I desire.

And finally, the following visual analogue scale below served as the third measure of self-agency.

*Please indicate on the scale below how confident you are in your ability to lose weight and keep it off.*



#### Dependent measures

##### *Body Mass Index (BMI)*

Participants were asked their current weight and height in order to calculate BMI. Previous studies have indicated that self-reported weight and measured weight are highly correlated (Lowe, Miller-Kovach, & Phelan, 2001). Furthermore, for the purposes of the present study, relative weight across the independent variables is of concern rather than absolute weight. It is expected that any underreporting of weight will be consistent across levels of the independent variables. Because the vast majority of the sample chose to receive the questionnaires via mail and the monetary compensation rather than the seminar, it was impractical to take actual height and weight measurements.

##### *Medical risks*

Weight and Lifestyle Inventory (WELS): The WELS is a semi-structured interview that assesses readiness to begin weight control and its accompanying lifestyle changes. This instrument was developed and is used by the Sandoz Nutrition Company (1987) as well as other programs to gauge participants' suitability for treatment. The

WELS includes a one-page checklist that assesses the presence of both current and past medical conditions associated with obesity. This was used in the present study with the addition of “High cholesterol.” The total number of conditions indicated served as the instrument’s score.

*Measures of eating behavior*

Three-Factor Eating Questionnaire (TFEQ): 65-item measure assesses disinhibition, hunger, and cognitive restraint (divided into scales measuring rigid and flexible control of eating behavior). These subscales have been validated and their ability to predict various aspects of eating behavior has been demonstrated (Stunkard & Messick, 1985). Furthermore, research has demonstrated differential scoring across the subscales among untreated obese, treated obese and normal weight subjects (Bjorvell, H., Rossner, S., & Stunkard, A., 1986).

Power of Food Scale (PFS): This 18-item scale is designed to assess the perceived psychological influence of food in the environment. It separately measures the perceived influence of food when it is available but not present, present but not tasted, and tasted. Though it is still under development, research (Butryn et al, 2004) supports the reliability and validity of the PFS.

Questionnaire on Eating and Weight Patterns-Revised (QEWP-R): This 20-item scale is a self-report instrument designed specifically to measure the presence or absence of binge eating episodes, the frequency of episodes, and additional features required to meet DSM-IV diagnostic criteria. Specifically, the QEWP-R is a dichotomous measure that assesses whether or not one has binge eating disorder (BED). Spitzer et al (1992) have demonstrated convergent and divergent validity of this instrument.



### *Measures of psychological distress*

The Brief Symptom Inventory (BSI): This 53-item questionnaire is a measure of psychological symptoms (Derogatis, L.R., 1993), with participants rating how distressed they have been in the last seven days. The BSI has been shown to have test-retest reliability ranging from .68 to .91. Internal consistency ranged from .71 to .85. Comparing the BSI to the MMPI provided convergent validity.

Impact of Weight on Quality of Life- Lite (IWQOL): The IWQOL (Kolotkin et al, 2001) is a 31-item self-report instrument used to measure the impact of obesity and weight reduction on quality of life. The five sub-scales (physical function, self-esteem, sexual life, public distress, and work) have demonstrated construct validity and excellent reliability (Kolotkin et al, 2001). The IWQOL total score has also demonstrated acceptable psychometric properties (Kolotkin et al, 2001).

### *Measures of body-image*

The Body Shape Questionnaire (BSQ): This 34-item scale measures concern about body weight and shape. Rosen et al (1997) conducted extensive psychometric studies on the BSQ. They demonstrated strong test-retest reliability as well as concurrent and criterion-related validity.

The Shape and Weight Based Self-Esteem Inventory (SAWBS): The SAWBS measures the magnitude of shape and weight in overall self-concept. Reliability as well as concurrent, discriminant, and predictive validity have been demonstrated (Geller, Johnston, & Madsen, 1997). The SAWBS is qualitatively different from other measures of body image because it measures how much body-image influences overall self-esteem, rather than the isolated quality of one's body-image.

Finally, participants were asked to indicate how they perceive their own weight using the following question, “Please indicate your weight level on the following scale:”

1	2	3	4	5	6	7
Very Underweight			Just Right			Very Overweight

*Obesity-related knowledge*

Obesity Knowledge Quiz: This 12-item scale measures four aspects of obesity-related knowledge: etiology of obesity, diseases related to obesity, weight loss techniques, and general information of obesity. Price, O’Connell, & Kukulka (1985) developed the instrument which has displayed both internal and test-retest reliability.

Participants were further asked to provide a rating on a 5-point scale to the following questions:

1. How much health risk do you think you have because of your weight?

1	2	3	4	5
No risk	Slight risk	Moderate risk	High risk	Very High risk

2. If you were to lose 20 lbs and keep it off permanently, how do you think it would affect your health in the future (circle one)?

- A. It would hurt my health
- B. It would have no effect
- C. It would improve my health

*Answer this question only if you circled “C” in the preceding item:*

3. How much do you think a permanent weight loss of 20 pounds would improve your health?

- A. Slightly
- B. Moderately
- C. Greatly

### *Program Preference*

Participants were asked to write out a brief answer to the following question, “If you could design an ideal weight loss program for yourself, what would it be like? What would you want included?” Assessing participants’ thoughts in this regard could contribute to a body of research about overweight persons’ expectations about weight control interventions (King, Rothman, & Jeffrey, 2002) as well as providing feedback as to what needs are not being addressed in current programs.

### *SES as a Predictor*

Four Factor Index of Social Status: Socioeconomic status (SES) was measured using Hollingshead's four-factor index of social position (Hollingshead, 1975). This method uses the head of the household's occupation and income to measure socioeconomic status and is the most widely used method for assessing SES.

### Estimation of power

Determining the power of the proposed study depends on estimation of the effect sizes of the differences in levels of the proposed dimension. In determination of the appropriate sample size for the proposed research, it is assumed that these distinctions would have medium effect sizes. A power level of at least .80 was targeted in all analyses.

Since different statistical tests require different sample sizes to achieve the same power, the most demanding test was chosen in order to determine the necessary sample size, which in this case was the one-way ANCOVAs with help-seeking as the fixed factor with two levels and SES as a covariate. Assuming a medium effect size, obtaining a power of .80 using directional simple effects tests (with  $p < .05$ ) requires a sample size of

64 subjects per cell (or 128 subjects overall). If a large effect size is assumed, the required sample size is 26 subjects per cell (or 52 subjects overall) (Faul & Erdfelder, 1992).

Power analyses were also conducted for the linear regression analyses utilized when examining help-seeking on a continuum. Again assuming a medium effect size, a sample size of 55 is adequate to achieve power of .80. If a large effect size is assumed, a sample size of 25 is sufficient (Faul, F. & Erdfelder, E., 1992).

In conclusion, the sample size of 120 in the present study is more than adequate for demonstrating medium effect size in the regression analyses. This sample size allows for demonstrating between large and medium effect size in the ANOVAs, though much closer to the medium range.

## Results

### Preliminary analyses

Chi-Square tests were conducted to discern whether there were demographic differences between the two sources of participants, those recruited from the Hahnemann Hospital cafeteria and responders to the ad placed in *The Metro*. There were no differences in age and education level between participants recruited from the Hahnemann Hospital cafeteria versus via *The Metro*. There was a significant difference,  $X^2 = 13.81, p < .008$  between the two groups in terms of ethnicity, with there being more African-Americans drawn from *The Metro* sample. Participants from the Metro sample had significantly higher BMIs,  $F = 9.02, p = .003$ . There was no difference between the two participant pools on the help-seeking measure.

The correlation between BMI and help-seeking and age and help-seeking was

computed. There was not a significant relationship between help-seeking and BMI. The correlation between age and help-seeking was significant,  $r = .35, p = .000$ , therefore, all subsequent significant analyses between help-seeking and other dependent measures were analyzed a second time with age as a covariate. Note that in these and all subsequent analyses, the covariate was not entered initially in order to maximize power.

The correlation between help-seeking, as both a dichotomous and continuous variable, and SES was examined. When measured continuously, there was no relationship between SES and help-seeking. However, when measured as a dichotomy (e.g., whether or not one has sought help from a professional for weight control) the correlation between help-seeking and SES approached significance ( $r = .16, p < .091$ ).

#### Primary analyses

##### *Help-seeking as a categorical variable*

The number of participants who tried each help-seeking behavior and the mean times tried are presented in Table 2. The dichotomy used divided the sample into those who had sought help from some kind of professional (high help-seeking,  $N = 71$ ) versus those who had sought help using alternative methods (low help-seeking,  $N = 48$ ). The alternative methods utilized in the low help-seeking category included dieting without relying on any assistance (e.g., using willpower, following my own exercise plan, etc) and seeking help to a lesser degree (e.g., using meal replacements, joining an exercise class). Means and standard deviations for all measures by help-seeking group are presented in Table 3.

To reduce the number of comparisons made, MANOVAs were conducted where appropriate. The following sets of measures were entered into MANOVAs as the

dependent variable with help-seeking level as the fixed factor: the indicators of disordered eating (the disinhibition and hunger subscales of the TFEQ), the two measures of restrained eating (the rigid and flexible restraint subscales of the TFEQ), the subscales of the PFS and the subscales of the IWQOL.

The MANOVA conducted on the IWQOL subscales was not significant. The MANOVA consisting of the rigid and flexible subscales of the TFEQ approached significance, [ $F(2, 96) = 2.63, p = .077$ ] as did the MANOVA measuring the disinhibition and hunger subscales of the TFEQ, [ $F(2, 95) = 2.86, p = .062$ ]. Finally, the MANOVA applied to the PFS subscales was significant, [ $F(3, 105) = 2.70, p = .05$ ]. Within this MANOVA, all three subscales were significant: PFS-Abstract [ $F(1, 107) = 6.73, p = .011$ ], PFS-Temptation [ $F(1, 107) = 7.36, p < .008$ ], PFS-Taste [ $F(1, 107) = 4.67, p = .033$ ]. When Bonferroni's correction was applied, the PFS-Abstract subscale and PFS-Temptation subscale remained significant while the PFS-Taste subscale was marginally significant ( $p < .01$ ). The PFS total score was entered into an ANOVA which was also significant, [ $F(1, 107) = 8.01, p = .01$ ].

In these cases of significant or moderately significant MANOVAs, MANCOVAs were conducted with age and separately SES entered as a covariate. For the rigid and flexible restraint subscales of the TFEQ, entering age and SES did not change the results. When age was entered as a covariate with the disinhibition and hunger subscales of the TFEQ, the results changed slightly with the model moving closer to significance, [ $F(2, 95) = 3.02, p = .054$ ]. Entering SES resulted in a significant MANCOVA, [ $F(2, 95) = 3.35, p = .039$ ]. The individual ANOVAs were then examined. The disinhibition scale was marginally significant, [ $F(2, 95) = 3.56, p = .062$ ], while the hunger subscale was

significant [ $F(2, 95) = 6.26, p = .014$ ]. This value remained significant when Bonferroni's correction was applied. In the analysis of the PFS, entering age and SES as covariates did not alter the results.

It was assumed that the body image measures (SAWBS & the BSQ) would be correlated and entered into a MANOVA, but this was not the case in a preliminary test, therefore they were analyzed as separate one-way ANOVAs. The ANOVA for the SAWBS by help-seeking level was not significant. However, the ANOVA for the BSQ was significant, [ $F(1, 105) = 5.283, p = .023$ ].

One-way ANOVAs were used to test the predictive value of the medical risks measure, the cognitive restraint subscale of the TFEQ, the total score of the IWQOL, the BSI, and the Obesity Knowledge Quiz on help-seeking level. Each of these measures was entered as a separate dependent variable with help-seeking level as the fixed factor Table 4 and Figure 2 respectively provide information on how participants responded to the Obesity Knowledge Quiz and what medical risks were represented by the sample. Table 4 shows the percentage of participants in the present study and in the normative sample that responded correctly to each item on the Obesity Knowledge Quiz. Differences in scoring between the present and normative sample could be affected by two differences between them: one, changes over time, particularly improved nationwide education about obesity and two, that the normative sample was comprised of all college students.

For the medical risks measure, the cognitive restraint scale of the TFEQ, and the BSI the results of the ANOVAs were not significant. The result was marginally significant for the total score of the IWQOL [ $F(1, 100) = 3.38, p = .069$ ]. Age and SES were then entered, in separate analyses, as covariates. Neither changed the primary result.

The ANOVA for the Obesity Knowledge Quiz was significant, [ $F(1, 116) = 4.02, p = .047$ ]. Entering age and SES into an ANCOVA again did not change the result. Table 5 summarizes all findings.

Finally, the responses to the QEWP-R (measure of binge eating) were analyzed. Thirty-seven percent of the sample reported engagement in binge-eating behavior. Twelve percent met criteria for Binge Eating Disorder according to their responses on this DSM-IV based measure. Because the QEWP-R yields dichotomous scores, two Chi-Square analyses were conducted. One was whether or not bingeing (“yes” or “no” to question #3) varied across the help-seeking dimension. The second was whether a diagnosis of BED varied across the help-seeking dimension. Neither result was significant.

To summarize, when measured as a dichotomy of whether or not participants sought help with weight control from an outside professional or organization, the following measures were associated with help-seeking: higher scores on the PFS and its subscales, the BSQ, and the Obesity Knowledge Quiz. The total score on the IWQOL, the TFEQ disinhibition and the TFEQ subscales of restraint were moderately associated with help-seeking. In the case of the hunger subscale of the TFEQ, entering SES as a covariate resulted in a significant relationship between higher hunger level and help-seeking behavior. The following measures were not associated with help-seeking level: BMI, comorbid medical risks, the cognitive restraint scale of the TFEQ, the BSI, and the SAWBS.

#### *Help-seeking as a continuous variable*

A series of simultaneous linear multiple regression analyses for each dependent



measure was conducted with help-seeking score as the independent variable. Secondary analyses were done on all significant findings with SES and separately age as additional independent variables.

Consistent with the categorical findings, the PFS was significant,  $\beta = .30, p = .002$ . The separate subscales of the PFS were also significant: PFS- Abstract ( $\beta = .27, p = .004$ ), PFS- Temptation, ( $\beta = .23, p = .013$ ), and PFS- Taste ( $\beta = .31, p = .001$ ) as was the hunger subscale of the TFEQ,  $\beta = .32, p = .002$ . The Obesity Knowledge Quiz, ( $\beta = .21, p = .025$ ), and the BSQ, ( $\beta = .31, p = .001$ ) were again significant. Additionally, the BSI was significant, ( $\beta = .31, p = .001$ ).

Several scales of the IWQOL were significant when entered as separate regressions. These included the following Physical function, ( $\beta = .22, p = .019$ ), Self-esteem, ( $\beta = .26, p = .005$ ), Sexual life, ( $\beta = .46, p = .000$ ), Public distress, ( $\beta = .37, p = .005$ ), Work, ( $\beta = .30, p = .002$ ), and the total IWQOL score, ( $\beta = .36, p = .000$ ), was also significant.

When entered as additional independent variables, age did not alter the results. SES increased predictive value on one occasion, when it was added to the regression consisting of help-seeking and the Obesity Knowledge Quiz, the significance level increased greatly, ( $\beta = .38, p = .000$ ).

Finally, two stepwise regressions were conducted, the first entering all the significant predictors (e.g., the PFS, BSI, IWQOL-Total, Obesity Knowledge Quiz, Body Shape Questionnaire, and the hunger subscale of the TFEQ. The predictors kept in this model were the IWQOL-Total ( $\beta = .26, p = .032$ ) and the PFS ( $\beta = .26, p = .032$ ). Interestingly, when SES was entered into this regression as an additional predictor, the

model changed. The significant predictors kept in the model were the IWQOL-Total ( $\beta = .46, p = .000$ ) and the Obesity Knowledge Quiz, ( $\beta = .22, p = .029$ ).

Finally, binge-eating behavior was measured as a predictor of help-seeking behavior. As reported above, 37% of the sample reported engagement in binge-eating behavior, while 12% actually met criteria for Binge Eating Disorder. Two Kruskal-Wallis tests were conducted on the QEWP-R score and help-seeking level. The first whether or not bingeing (“yes” or “no” to question #3) varied across the help-seeking dimension. The second was whether a diagnosis of BED varied across the help-seeking dimension. The incidence of binge-eating across help-seeking was not significant. However, the difference in the rate of BED diagnosis across help-seeking level approached significance,  $X^2 = 3.74, p = .053$ , with high help-seekers displaying more binge-eating.

In sum, the following were not significant predictors of help-seeking level as a continuous measure: BMI, comorbid medical risks, all subscales of the TFEQ with the exception of the hunger subscale, and the SAWBS. As in the categorical analyses, the PFS, the BSQ, and the Obesity Knowledge Quiz were significant predictors of help-seeking behavior. In addition, the BSI and all IWQOL subscales emerged as indicators of help-seeking. Scores on a measure of binge-eating demonstrated a modest relationship with help-seeking level as well.

### Exploratory analyses

The two participants who had never dieted were not included in analyses of the self-agency dimension. First, the reliability of the six-item self-agency scale was computed. Chronbach’s alpha was .43, indicating poor reliability. Further analysis examined whether removing any items would result in improved reliability. Removing

item two from the revised locus of control scale increased Chronbach's alpha to .51, still too low to be considered a reliable measure. Therefore it was decided that, rather than using an unreliable measure or a measure with few items, further analyses of this self-agency measure would not be pursued. However, analyses were conducted using the first item alone as was originally proposed.

The strength of the correlation between the help-seeking and item one of the self-agency measure was  $r = -.24, p < .05$  meaning that higher levels of help-seeking behavior was associated with an external agency orientation. Participants were divided into two groups, internal versus external self-agency orientation based on their response to this item. Those who responded that they relied "somewhat more on their own efforts" or "entirely on their own efforts" were placed in the internal self-agency group. All others were placed in the external agency group.

The series of MANOVAs and ANOVAs conducted for help-seeking as a dichotomy were then applied to the self-agency groups. The ANOVA with PFS-Total analyzed by group was significant, [ $F(1, 99) = 4.71, p = .032$ ] such that those in the external agency group had higher scores on the PFS. However, the MANOVA conducted with the PFS subscales was not significant. Given that there is some overlap between this agency measure and help-seeking, the ANOVA for PFS-total was repeated with help-seeking used as a covariate. The result was moderately significant, [ $F(1, 98) = 3.65, p = .059$ ], indicating that the PFS relation with self-agency effect was largely independent of its relation to help-seeking. There were no other significant findings using the self-agency dichotomy.

### Qualitative analysis

Finally, participants were asked the following question: “If you could design an ideal weight loss program for yourself, what would it be like? What would you want included?” The data garnered by this item was reviewed according to procedures utilized by *Demographic Perspectives*, a consulting organization that analyzes both qualitative and quantitative data. One hundred and three participants (86% of the sample) provided a response to this question. Appendix D lists all comments. Responses largely centered around the following themes: help from an outside professional, psychoeducation, exercise, affordability, time, diet, motivation, and group support. The vast majority of those who responded listed exercise and diet as the areas that would like addressed. The broad category of diet included many facets such as pre-made meals, structure, counting calories or other nutritional components such as carbohydrates, smaller meals, portion control, making alternative choices, and including all foods. One possible interpretation of this universal focus on both the intake and expenditure side of the equation is that participants have quite realistic expectations of what weight control should entail. Another interpretation consistent with the first is that participants want a focused program addressing just these areas.

Not surprisingly when comments were sorted by responders’ help-seeking level, high help-seekers were more likely to desire the support of a professional (19 of 66, 28%) versus low help-seekers (2 of 36, 5%). A Chi-Square analysis demonstrated that this difference was significant,  $X^2 = 7.69, p < .01$ . The qualitative data then to some extent provides further content validation for how the help-seeking construct was measured. For example, those participants who are historically high in help-seeking and currently

expressing the need for professional help could include those whose distress has not been addressed by the weight loss interventions they have tried. Comments such as the following may be indicative of this interpretation; “the primary component would be some kind of counselor or coach who would *always* be available.”

Participants’ comments were also examined by SES level. The emphasis on diet and exercise was consistent across all SES levels. Interest in professional help was examined across SES levels. Interestingly, 0% (0 out of 10) in the lowest SES category mentioned professional help as a desired component of an ideal weight loss program. This rate did not vary considerably across the middle four categories (20%, 26%, 21%, and 23% respectively). However in the highest category, 2 of 3 participants (67%) wanted a professional involved in their weight control efforts. Certainly this finding is limited by a low sample size but it does suggest there may be a discrepancy between what is perceived as desirable and necessary for weight loss between those of very high versus very low SES. The mention of time and affordability as considerations for an ideal program are important factors for future program development.

The data provided by participants’ generous responses to this question are rich with implications for future interventions as well as supplementing the quantitative measures administered. Further interpretation of these comments should include one, agreement among expert raters as to what broad topics have been represented (e.g., determining the “factors” the comments reflect). And two, the comments would ideally then be coded, after a brief training period, by raters blind to the study.

## Discussion

Previous research has viewed engagement in weight control efforts as a dichotomy of whether or not one seeks help from a professional or organization (e.g., Fitzgibbon, Stolley, and Kirschenbaum, 1994; Kolotkin, Crosby, & Williams, 2002). This distinction does not account for the range of behaviors in between that can be used for weight control, particularly perhaps the most common, dieting on one's own (Horm & Anderson, 1993, Wardle & Johnson, 2002). The present study aimed to address the following gaps in this area: a) conceptualizing help-seeking as a dimension as well as a dichotomy, b) identifying correlates of help-seeking level, c) understanding how SES is related to help-seeking level, and d) providing a second dimension (self-agency) that taken together with help-seeking might more exhaustively explain individual differences in weight control efforts. We predicted that differences in help-seeking level would largely be dictated by the severity of the obesity and obesity-related quality of life.

### Self-agency dimension

The self-agency dimension was proposed to theoretically explain aspects of weight control efforts not described fully by help-seeking. A modestly significant correlation between the two was initially hypothesized as optimally allowing for differential prediction from help-seeking. However, the measure developed for the purpose of testing this concept displayed poor reliability. A one-item measure was then utilized to investigate the exploratory hypotheses proposed. The PFS was the sole correlate of self-agency determined by this method. As expected, participants' with an internal agency orientation had lower scores on the PFS. The lack of other predictors and this finding itself should be interpreted with caution, as a one-item indicator has not been

psychometrically evaluated. If, however, this finding is replicable, it suggests that there is a relationship between one's perception of their ability to engage in weight control and their feeling of control in a tempting food environment.

#### Correlates of help-seeking as a dichotomy

Efforts to identify correlates of help-seeking were more fruitful. When measured as a dichotomy, the findings of previous studies (e.g., Kolotkin, Crosby, & Williams, 2002) indicating that there are psychosocial correlates of help-seeking were replicated. Higher levels of self-reported responsiveness to the food environment and concern about body shape and weight were associated with seeking help from a professional or organization. These findings were demonstrated for the variables separately, without controlling for the interrelationship between them. Poorer weight-related quality of life was moderately correlated with high help-seeking level as well. In addition, higher levels of knowledge about obesity, particularly its risks, were also associated with seeking help. Neither BMI nor number of comorbid medical conditions was related to help-seeking. Controlling for age did not alter these findings.

#### Correlates of help-seeking as a dimension

These findings were replicated when help-seeking was measured on a continuum. In this method there were additional significant relationships. Higher levels of psychological distress were also related to help-seeking level. Several aspects of weight-related quality of life measured by the IWQOL (e.g., physical function, self-esteem, sexual life, public distress and work) were significantly associated with more help-seeking. Presence of binge-eating episodes demonstrated a trend such that bingeing predicted higher levels of help-seeking. Again, BMI and the presence of comorbid

medical conditions did not emerge as predictors of weight control efforts.

Measuring help-seeking as a dimension yields findings consistent with the dichotomous approach. It appears that by widening the definition of help-seeking to include a variety of behavioral strategies in between seeking outside help or not provides a richer understanding of weight control, particularly in a community sample. Furthermore, each item in the continuous approach was weighted by the number of times the particular help-seeking behavior was demonstrated. Either or both adjustments could account for differences in results. For example, when measured as a dichotomy, there was no relationship between general feelings of distress (BSI) and help-seeking. However, when measured continuously, the correlation between help-seeking and BSI score was significant. This suggests that negative affect may be more relevant in determining *whether* help is sought rather than how *often* help is sought. In this example, perhaps a driving factor in more frequent and/or more intense help-seeking efforts is negative affect. In general, utilizing a continuous approach resulted in significant findings becoming stronger, and some nonsignificant results becoming significant. This is helpful for investigating predictors of weight control behavior more exhaustively.

#### The role of SES in help-seeking

As Kumanyika (2002) has extensively and lucidly reviewed, SES may be a primary determinant of who engages in weight control efforts. There are factors (e.g., time, affordability, familiarity with weight-related health risks, perception of ideal weight, etc) intimately intertwined with SES that clearly are associated with weight control behavior. Therefore, consideration of the role of SES in help-seeking behavior is crucial to an all-encompassing understanding of what influences efforts to engage in weight control.



In the present study, the relationship between SES and help-seeking varied based on how help-seeking was measured. When measured as a dichotomy (e.g., whether or not one has sought help from a professional for weight control) the correlation between help-seeking and SES approached significance. However, when help-seeking was measured continuously, there was no relationship between SES and help-seeking. Perhaps widening the definition of help-seeking allows the inclusion of actions not influenced by factors associated with greater means (e.g., affordability and time) and other confounding influences in seeking professional assistance.

Overall, SES did not attenuate the relationship between help-seeking and its possible correlates studied. An exception is the direct association between SES and obesity-related knowledge. There was some evidence in the present study that SES moderated the relationship between help-seeking and obesity-related knowledge in that the latter was associated with help-seeking as a function of SES level. This finding is important as it suggests that public outreach about obesity and its risks directed towards persons of lower SES could be improved such that there are no differences across SES in this regard. Items such as those on the Obesity Knowledge Quiz offer ripe opportunities for outreach and education. We saw that the present sample demonstrated overall higher scores on this measure than the normative sample. This change perhaps reflects improved public health efforts over time. Continuing to apply these efforts to low-SES communities may be beneficial in our aim to increase weight control efforts among this population.

#### Clinical significance

Clinically, by studying the correlates of help-seeking behavior, the present study

contributes some evidence as to why most organized weight control programs do not work in the long-term. The greater distress of help-seekers may contribute to poorer long-term outcomes in this group. The results indicated that there was an overall distinction between what variables were and were not associated with help-seeking. For example, medically significant factors were not associated with higher levels of help-seeking, nor were measures of disordered eating (e.g., restrained and disinhibited eating). Measures of weight-related quality of life and body image were better discriminators of help-seeking level. The psychosocial distress related to weight that these participants are presenting with might not be exhaustively addressed in treatments focused on weight loss only, perhaps making relapse or dropout more likely. For example, many weight loss programs advocate the loss of a “meaningful” amount of weight. Perhaps this is unacceptable to persons with more negative perceptions of their bodies and their resulting quality of life, a conclusion consistent with the work of Cooper & Fairburn (2001). In order to address this, they incorporated a comprehensive module on body image in their CBT-treatment for obesity (Cooper & Fairburn, 2003). Perhaps based on the initial assessment of such constructs, participants in both commercial and university-based programs could receive this sort of treatment component if deemed appropriate.

Indicators of hunger and the subjective reaction to food were also consistent correlates of greater help-seeking. This result has possible ramifications for both prevention and intervention. Given the current food environment which one prominent researcher has labeled “toxic” (Brownell & Battle Horgen, 2003) it is not surprising that measures tapping into the influence of food itself were the strongest predictors of help-seeking. The physical and psychological distress of being overweight and living in an

environment where limitless palatable food is available is the major determinant (from among those studied) of who will seek outside help for weight control. This also suggests that such individuals might best be treated by an approach that emphasizes the greatest control over exposure to threatening aspects of the food environment (e.g., use of meal replacements).

### Limitations

The present study had limitations. Neither method of measuring help-seeking indicates how often participants tried a behavior. It is unclear from these and all previous attempts to measure the construct how long participants followed through on behaviors they used for weight control. For example, a participant could have tried Weight Watchers® five times while only averaging two visits per attempt. A further addition to the help-seeking measure would be to assess how many weeks tried and/or how much weight one lost per attempt of each behavior to control for variability in effort across help-seeking levels.

The weight and height data used to calculate BMI was based on participant report rather than measurements. Despite research suggesting that self-report and measured weights are highly correlated (Lowe, Miller-Kovach, & Phelan, 2001), if this discrepancy did vary with high-seeking level, our analyses of BMI as a predictor could have been biased. Similarly, the measure of comorbid medical conditions was based on participant report of such conditions. Physician ratings evaluating the severity of these conditions as well as an overall assessment regarding participants' health would have been desirable. Certainly the gold-standard would be the measurement of accompanying biological indicators (e.g., blood pressure, cholesterol levels, etc).

A weakness of the present study is the self-selection of participants. Participants volunteered to enroll in the study as opposed to us selecting certain areas and/ or settings to seek participants. Certainly there could be a bias associated with a self-selection recruitment strategy. However in regards to confounding with help-seeking, only eight out of 120 participants chose attendance at a weight loss and nutrition seminar as remuneration, suggesting that participants were largely motivated to enroll for reasons other than the opportunity to receive help.

There could also have been a bias wrought by recruiting participants who had initially expressed interest in a workplace-based intervention for the prevention of weight gain. However, preliminary analyses showed that by drawing participants from these two community bases, variability across participants actually increased, which strengthens the generalizability of these findings. At the same time the fact that there were no group differences in help-seeking suggests that combining the two groups did not bias the results.

A strength of the present study was the relatively wide range in SES and ethnic diversity of the sample, though the lower end of the Hollingshead classification (Hollingshead, 1975) still was less represented. The recruitment of participants via an inner-city commuter newspaper yielded a high volume of phone calls. Future studies could select callers based on their zipcode or other such factors thereby targeting persons of even lower SES.

#### Conclusion & Future directions

An important future direction in addition to studying physiological predictors of help-seeking level and a lower SES sample would be to assess predictors of help-seeking

across different ethnic groups. A review of the relationship between ethnic diversity and weight and eating behavior noted that by collapsing across these subgroups we may be missing important ethnic distinctions and life circumstances that could be especially relevant to weight control behavior (Zoler Douchis, Hayden, and Wifley, 2001). Finally, studying the correlates of help-seeking behavior in men is an extremely important next step.

In conclusion, help-seeking for weight control in a community sample appears to be motivated by psychological aspects of obesity, rather than obesity's physical or medical burden. The most consistent and strongest predictors of weight control actions were the PFS, a measure of appetitive hyperresponsiveness to the food environment as gauged by the effects of food on thoughts, feelings, and behavior and the Hunger subscale of the TFEQ, which is a subjective measure of hunger's influence on behavior. This finding may suggest that on an idiographic level, weight control efforts need to target foods' influence and/ or specifically address vulnerability to food and hunger. For example, reframing could be used specifically on the types of thoughts identified by these measures. The use of meal replacements is another relevant strategy as they are meant to decrease feelings of helplessness in the face of the present food environment. But when we consider these findings on a population level, perhaps the most effective intervention is for the food environment itself to be altered.

## References

- Ball, K., Mishra, G.D., & Crawford, D. (2003). Social factors and obesity: an investigation of the role of health behaviors. *International Journal of Obesity*, 27, 394-403.
- Bandura, A. (2000). Social cognitive theory: An agentic perspective. *Annual review of Psychology*, 52, 1-26.
- Bjorvell, H., Rossner, S., & Stunkard, A. (1986). Obesity, Weight Loss, and Dietary Restraint. *International Journal of Eating Disorders*, 5-4, 727-734.
- Blackburn, G.L. (2002). Weight Loss and Risk Factors. In C.G. Fairburn & K.B. Brownell (Eds.), *Eating Disorders and Obesity*, (2<sup>nd</sup> ed., pp. 484-489). New York: The Guilford Press.
- Blackburn, G.L. (1995). Effect of degree of weight loss on health benefits. *Obesity Research*, 3, 211s-216s.
- Brehm, J.W. (1996). *A Theory of Psychological Reactance*. New York: Academic Press.
- Brink, P.J. & Ferguson, K. (1998). The decision to lose weight. *Western Journal of Nursing Research*, 20-1, 84-102.
- Brownell, K.D. & Battle Horgen, K. (2003). *Food Fight: The Inside Story of the Food Industry, America's Obesity Crisis, and What We Can Do About It*. New York: McGraw-Hill.
- Butryn, M.L., Didie, E., Annunziato, R.A., Coletta, M., Lowe, M.R. (2004). The Power of Food Scale: Reliability, Validity and Factor Structure. Paper submitted to the *Annual Meeting of the North American Association for the Study of Obesity, Las Vegas, Nevada*.

- Cooper, Z. & Fairburn, C.G. (2001). A new cognitive behavioural approach to the treatment of obesity. *Behaviour Research and Therapy*, 39, 499-511.
- Cooper, Z., Fairburn, G.C., & Hawker, D.M. (2003). *Cognitive-Behavioral Treatment of Obesity: A Clinician's Guide*. New York: The Guilford Press.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19, 109-134.
- Derogatis, L. R. (1993). BSI: Administration, scoring, and procedures manual for the Brief Symptom Inventory (Third edition). Minneapolis, MN: National Computer Systems.
- Eckel, R.H. (1997). Obesity and heart disease: A statement for healthcare professionals from the Nutrition Committee, American Heart Association. *Circulation*, 96, 3248-3250.
- Faul, F. & Erdfelder, E. (1992). GPOWER: A priori, post-hoc, and compromise power analysis for MS-DOS [Computer program]. Bonn, FRG: Bonn University, Dept. of Psychology.
- Field, A.E., Barnoya, J., & Colditz, G.A. (2002). Epidemiology and Health and Economic Consequences of Obesity. In T. A. Wadden & A. J. Stunkard (Eds.), *Handbook of Obesity Treatment*, (pp. 3-18). New York: The Guilford Press.
- Fitzgibbon, M.L. & Kirschenbaum, D.S. (1990). Heterogeneity of clinical presentation among obese individuals seeking treatment. *Addictive Behaviors*, 15, 291-295.
- Fitzgibbon, M.L., Stolley, M.R., & Kirschenbaum, D.S. (1993). Obese people who seek treatment have different characteristics than those who do not seek treatment. *Health Psychology*, 12-5, 342-345.
- Flegal, K.M., Carroll, M.D., Ogden, C.L., & Johnson, C.L. (2002). Prevalence and trends in obesity among U.S. adults, 1999-2002. *JAMA*, 288-14, 1723-1727.

- Fogarty, J.S. (1997). Reactance theory and patient noncompliance. *Social Science Medicine*, 45, 1277-1288.
- Fontaine, K.R., Bartlett, S.J., & Barofsky, I. (2000). Health-related quality of life among obese persons seeking and not currently seeking treatment. *International Journal of Eating Disorders*, 27, 101-105.
- French, S.A. & Jeffery, R.W. (1996). Current dieting, weight loss history, and weight suppression: behavioral correlates of three dimensions of dieting. *Addictive Behaviors*, 22-1, 31-44.
- Geller, J., Johnston, C., & Madsen, K. (1997). The role of shape and weight in self-concept: The Shape and Weight Based Self-Esteem Inventory. *Cognitive Therapy & Research*, 21-1, 5-24.
- Geller, J., Cockell, S.J., & Drab, D.L. (2001). Assessing readiness for change in the eating disorders: The psychometric properties of the readiness and motivation interview. *Psychological Assessment*, 13-2, 189-198.
- Hankey, C.R., Leslie, W.R., & Lean, M.E.J. (2002). Why lose weight? Reasons for seeking weight loss by overweight but otherwise healthy men. *International Journal of Obesity and Related Metabolic Disorders*, 26-6, 880-882.
- Harris, M.B., Waschull, S., & Walters, L. (1990). Feeling fat: Motivations, knowledge, and attitudes of overweight women and men. *Psychological Reports*, 67-3, 1191-1202.
- Hollingshead, A.B. (1975). *Four-factor index of social status*. Unpublished paper, New Haven, CT: Yale University, Department of Sociology.
- Horm, J. & Anderson, K. (1993). Who in America is trying to lose weight? *Annals of Internal Medicine*, 119, 672-676.
- Johansson, H., Granlund, B., & Sojka, P. (1986). Towards individual profile analyses for obesity treatment: Actual and self-judged knowledge of nutrition and dieting and perceived self-efficacy. *Scandinavian Journal of Behavior Therapy*, 15-4, 127-142.



- King, C.M., Rothman, A.J., & Jeffrey (2002). The Challenge study: theory-based interventions for smoking and weight loss. *Health Education Research*, 17-5, 522-530.
- Kolotkin, R.L., Crosby, R.D., Kosloski, K.D., & Williams, G.R. (2001). Development of a brief measure to assess quality of life in obesity. *Obesity Research*, 9, 102-111.
- Kolotkin, R.L., Crosby, R.D., & Williams, G.R. (2002). Health-related quality of life varies among obese subgroups. *Obesity Research*, 10-8, 748-756).
- Kumanyika, S.K. (1993). Special issues regarding obesity in minority populations. *Annals of Internal Medicine*, 119-7 (Part 2), 650-654.
- Kumanyika, S.K. (2002). Obesity Treatment in Minorities. In T. A. Wadden & A. J. Stunkard (Eds.), *Handbook of Obesity Treatment*, (pp. 416-446). New York: The Guilford Press.
- Lowe, M.R., Miller-Kovach, K. & Phelan, S. (2001) Weight-loss maintenance in overweight individuals one to five years following successful completion of a commercial weight loss program. *International Journal of Obesity*, 25, 325-331
- Lowe, M.R. (2002). *Self-Regulation of Energy Intake in the Prevention and Treatment of Obesity: Is it Feasible?* Unpublished manuscript.
- Pi-Sunyer, F.X. (1993). Medical hazards of obesity. *Annals of Internal Medicine*, 119, 655-660.
- Price, J.H., O'Connell, J.K., & Kukulka, G. (1985). Development of a short obesity knowledge scale using four different response formats. *Journal of School Health*, 55, 382-384.
- Prochaska, J.O., Norcross, J.C., Fowler, J.L., Follick, M.J., & Abrams, D.B. (1992). Attendance and outcome in a work site weight control program: processes and stages of change as process and predictor variables. *Addictive Behaviors*, 17, 35-45.

- Prochaska, J.O., Johnson, S., & Lee, P. (1998). The transtheoretical model of behavior change. In S.A. Shumaker & E.B. Schron (Eds.), *The Handbook of Health Behavior Change, (Second edition)*, (pp. 59-84). New York: Springer Publishing Co, Inc.
- Rohm Young, D., Gittelsohn, J., Charleston, J., Felix-Aaron, K., & Appel, L.J. (2001). Motivations for exercise and weight loss among African-American women: focus group results and their contribution towards program development. *Ethnicity & Health, 6-3/4*, 227-245.
- Rosen, J.C., Jones, A., Ramirez, E., & Waxman, S. (1996). Body Shape Questionnaire: Studies of validity and reliability. *International Journal of Eating Disorders, 20-3*, 315-319.
- Rossi, J.S., Rossi, S.R., Velicer, W.F., & Prochaska, J.O. (1995). Motivational Readiness to Control Weight. In D.B. Allison (Ed.) *Handbook of assessment methods for eating behaviors and weight-related problems: Measures, theory, and research*, (pp. 387-430). Thousand Oaks, CA: Sage Publications.
- Rossi, S.R., Rossi, J.S., Rossi-DelPrete, L.M., Prochaska, J.O., Banspach, S.W. & Carleton, R.A. (1994). A processes of change model for weight control participants in community-based weight loss programs. *The International Journal of the Addictions, 29-2*, 161-177.
- Rothacker, D.Q. (2000). Five-year self-management of weight using meal replacements: comparison with matched controls in rural Wisconsin. *Nutrition, 16*, 344-348.
- SamplePower [Computer software]. (2002). Chicago, IL: SPSS Inc.
- Saltzer, E. B. (1982). The Weight Locus of Control (WLOC) scale: A specific measure for obesity research. *Journal of Personality Assessment, 46-6*, 620-628.
- Sandoz Nutrition Company. (1987). The Weight, Eating and Lifestyle Scale (*WELS*). Minneapolis: Sandoz Nutrition.

- Steptoe, A., Rink, E., & Kerry, S. (2000). Psychosocial predictors of changes in physical activity in overweight sedentary adults following counseling in primary care. *Preventive Medicine, 31-2*, 183-194.
- Stunkard, A.J. & Messick, S. (1985). The three-factor eating questionnaire to measure dietary restraint, disinhibition and hunger. *Journal of Psychosomatic Research, 29*, 71-83.
- Sullivan, V. & Terris, C. (2001). Contemplating the stages of change measures for eating disorders. *European Eating Disorders Review, 9-5*, 287-291.
- Tinker, J.E. & Tucker, J.A. (1997). Motivations for weight loss and behavior change strategies associated with natural recovery from obesity. *Psychology of Addictive Behaviors, 11-2*, 98-106.
- U.S. Census Bureau (2000). American Fact Finder: People.  
<http://factfinder.census.gov/servlet/SAFFHousing?sse=on>.
- Valdez, R., Gregg, E.W., & Williamson, D.F. (2002) Effects of Weight Loss on Morbidity and Mortality. In C.G. Fairburn & K.B. Brownell (Eds.), *Eating Disorders and Obesity*, (2<sup>nd</sup> ed., pp. 490-494). New York: The Guilford Press.
- Van Horn, L. & Kavey, R.E. (1997). Diet and cardiovascular disease prevention: What works? *Annals of Behavioral Medicine, 19*, 197-212.
- Wadden, T. A. & Stunkard, A. J. (1993). Psychosocial consequences of obesity and dieting. In A. J. Stunkard & T. A. Wadden (Eds.), *Obesity: Theory and Therapy*, (Second edition), (pp. 163-177). New York: Raven Press.
- Wardle, J., Haase, A., Steptoe, A., Nillapun, M., Jonwutiwes, K., & Bellisle, F. (2004). Gender differences in food choices: the contribution of health beliefs and dieting. *Annals of Behavioral Medicine, 27-2*, 107-116.
- Wardle, J. & Johnson, F. (2002). Weight and dieting: examining levels of weight concern in British adults. *International Journal of Obesity, 26*, 1144-1149.

- White, M.A., Kohlmaier, J.R., Varnado-Sullivan, P. & Williamson, D.A. (2003). Racial/ethnic differences in weight concerns: Protective and risk factors for the development of eating disorders and obesity among adolescent females. *Eating & Weight Disorders*, 8-1, 20-25.
- Wadden, T. A. & Osei, S. (2002). The treatment of obesity: An overview. In T. A. Wadden & A. J. Stunkard (Eds.), *Handbook of Obesity Treatment*, (pp. 229-248). New York: The Guilford Press.
- Williams, G.C., Grow, V.M., Freedman, Z.R., Ryan, R.M., Deci, E.L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology*, 70-1, 115-126.
- Williamson, D.F., Serdula, M.K., Anda, R.F., Levy, A., & Byers, T. (1992). Weight loss attempts in adults: Goals, duration, and rate of weight loss. *American Journal of Public Health*, 82-9, 1251-1257.
- Wolf, A.M. & Colditz, G.A. (1998). Current estimates of the economic cost of obesity in the United States. *Obesity Research*, 6, 97-106.
- Wolfe, B.L. & Smith, J.E. (2002). Different strokes for different folks: Why overweight men do not seek weight loss treatment. *Eating Disorders: The Journal of Treatment and Prevention*, 10-2, 115-124.
- Ziebland, S., Robertson, J., Jay, J., & Neil, A. (2002). Body image and weight change in middle age: a qualitative study. *International Journal of Obesity Related Metabolic Disorders*, 8, 1083-1091.
- Zoler Douchis, J., Hayden, H.A., & Wilfley, D.E. (2001). Obesity, body-image, and eating disorders in ethnically diverse children and adolescents. In J.K. Thompson & L. Smolak (Eds.) *Body image, eating disorders, and obesity in youth: Assessment, prevention, and treatment*, (pp. 67-98). Washington DC: American Psychological Association.

**Appendix A: Tables & figures**

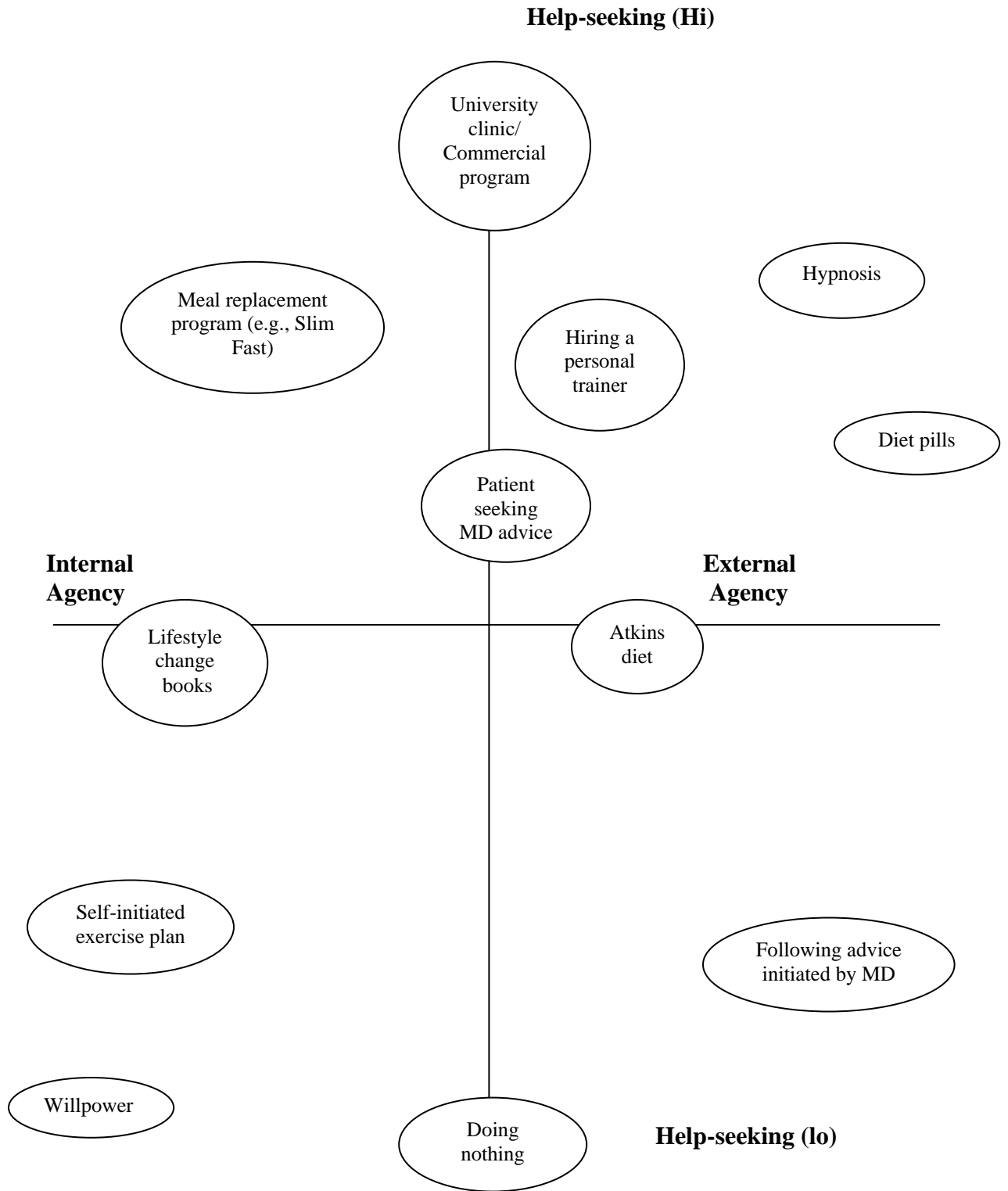
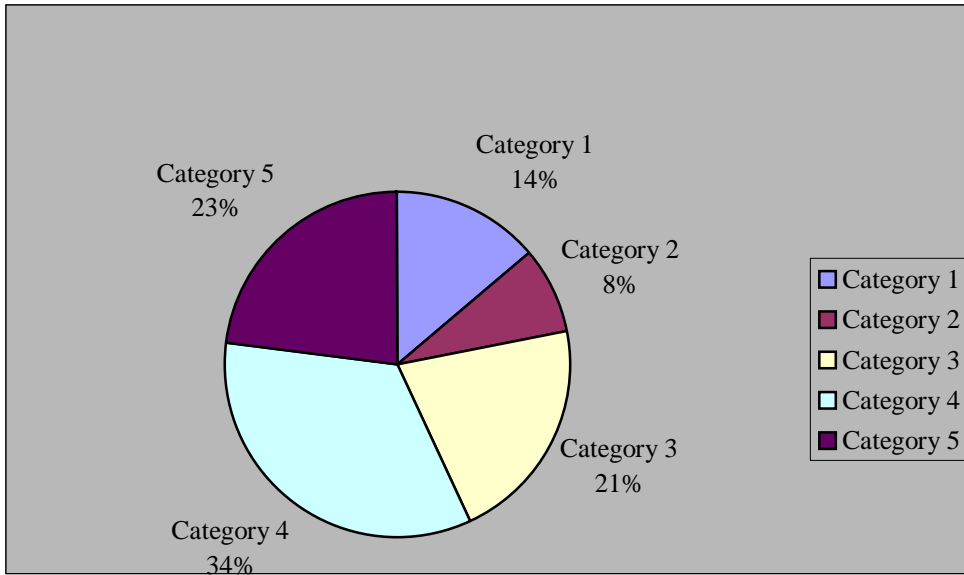


Figure 1: A two-dimensional conceptualization of weight control and accompanying examples

Table 1: Demographic characteristics of combined sample,  $N = 120$ 

	n (%)	Mean (SD)	Range
Age, y		39.53 (11.52)	22.00-65.00
Ethnicity			
African-American	70 (58)		
Caucasian	42 (35)		
Hispanic-American	2 (2)		
Asian-American	1 (1)		
Multiracial	5 (4)		
Marital Status*			
Single	63 (53)		
Married	33 (28)		
Divorced	11 (9)		
Partnered	4 (3)		
Widowed	4 (3)		
Separated	4 (3)		
Education level			
Less than 7th grade	1 (1)		
Partial high school	6 (5)		
High school graduate	17 (14)		
Partial college/ specialized training	48 (40)		
Standard college	32 (27)		
Graduate/ professional degree	15 (13)		

\*Will not add to 100%.



*\*Categories range from 1 indicating lowest SES level to 5 for the highest bracket.*

Figure 2: Percentage of participants in each SES category



Table 2: Percentage of participants who tried each behavior

Weight Loss Behavior	% Tried
Cut back on eating certain types of foods (e.g., fats, carbohydrates)	96%
Used my own willpower	82%
Cut calories on my own	81%
Started my own exercise plan	77%
Joined a gym to start my own exercise program	66%
Used meal replacements (e.g., Slim Fast, protein bars)	61%
Diet pills (e.g., Dexatrim)	51%
Joined an exercise class	50%
Sought the advice of a physician, nutritionist, or other health professional	42%
Purchased and followed a self-help book (e.g., Akins diet, Zone diet)	39%
Commercial weight loss program (e.g., Weight Watchers, Jenny Craig, LA Weight Loss)	38%
Took herbal supplements	35%
Sought advice from a personal trainer or other exercise expert	29%
Internet diet plan	12%
Hired a personal trainer	9%
Hospital or university-based weight loss program	7%
Went to a hypnotist	7%
Psychotherapy	4%

Table 3: Means and standard deviations of all measures by help-seeking level

Measure	Low Help-Seekers	High Help-Seekers
Body Mass Index (BMI)	33.47 (7.82)	34.01 (7.26)
Comorbid medical conditions (total)	1.59 (1.86)	1.75 (1.83)
Three-Factor Eating Questionnaire (TFEQ)- Disinhibition	7.86 (5.24)	9.45 (3.94)
Medical Conditions Total	1.59 (1.86)	1.75 (1.83)
Three-Factor Eating Questionnaire (TFEQ)- Hunger	5.19 (2.91)	6.77 (3.66)
Three-Factor Eating Questionnaire (TFEQ)- Rigid restraint	7.37 (2.88)	8.11 (2.79)
Three-Factor Eating Questionnaire (TFEQ)- Flexible restraint	6.35 (2.64)	5.84 (3.01)
Three-Factor Eating Questionnaire (TFEQ)- Cognitive restraint	17.68 (5.86)	17.52 (6.83)
Power of Food Scale (PFS)	42.24 (14.25)	51.16 (17.50)
Power of Food Scale (PFS)- Abstract	14.22 (6.03)	17.92 (8.19)
Power of Food Scale (PFS)- Temptation	15.56 (5.72)	18.49 (6.34)
Power of Food Scale (PFS)- Taste	12.52 (4.61)	14.51 (4.83)
Brief Symptom Inventory (BSI)	0.58 (0.62)	0.65 (0.61)
Impact of Weight on Quality of Life- Lite (IWQOL)- Physical function	21.77 (9.49)	22.97 (9.10)
Impact of Weight on Quality of Life- Lite (IWQOL)- Self-esteem	15.60 (7.36)	18.30 (7.81)
Impact of Weight on Quality of Life- Lite (IWQOL)- Sexual life	6.47 (3.68)	7.74 (3.80)
Impact of Weight on Quality of Life- Lite (IWQOL)- Public distress	7.48 (3.98)	8.22 (4.59)
Impact of Weight on Quality of Life- Lite (IWQOL)- Work	5.56 (2.42)	6.05 (3.37)
Impact of Weight on Quality of Life- Lite (IWQOL)- Total	56.67 (20.98)	64.47 (21.29)
Body Shape Questionnaire	95.05 (30.87)	109.48 (33.23)
Shape and Weight Based Self-Esteem	83.83 (85.12)	78.03 (64.89)
Obesity Knowledge Quiz	8.21 (1.99)	8.87 (1.58)
Questionnaire on Eating and Weight Patterns-Revised (QEWP-R)	29%	34%
% Binge Eating		
Questionnaire on Eating and Weight Patterns-Revised (QEWP-R)	6%	15%
% BED Diagnosis		

Table 4: Obesity Knowledge Quiz  
Percent of participants who correctly answered each item

Item	Correct Response	% Correct	% Correct (Normative sample)
Obese people are at greater risk of developing heart disease.	T	98%	98%
Obesity is more common in men than women.	F	94%	83%
Excess body weight can be reduced through regular (20-25 minutes/ 3 times a week) aerobic exercise.	T	92%	83%
In America, people have negative attitudes towards obese children and obese adults.	T	91%	94%
If a person eats more calories per day than he/ she burns than he/ she will gain weight.	T	90%	94%
Most obese people suffer from a hormone problem that causes them to be obese.	F	72%	80%
Dieting over a long period of time causes a measurable decrease in the number of fat cells.	F	64%	64%
Obese people are at greater risk of developing some forms of cancer.	T	61%	53%
People who are slightly overweight tend to live shorter lives.	F	56%	47%
Most people who are obese inherit (genetic) the problem from their parents.	F	50%	74%
People who are overweight tend to eat more than people of average weight	F	42%	36%
People from higher social classes are less likely to be overweight than people of lower social status.	T	39%	38%

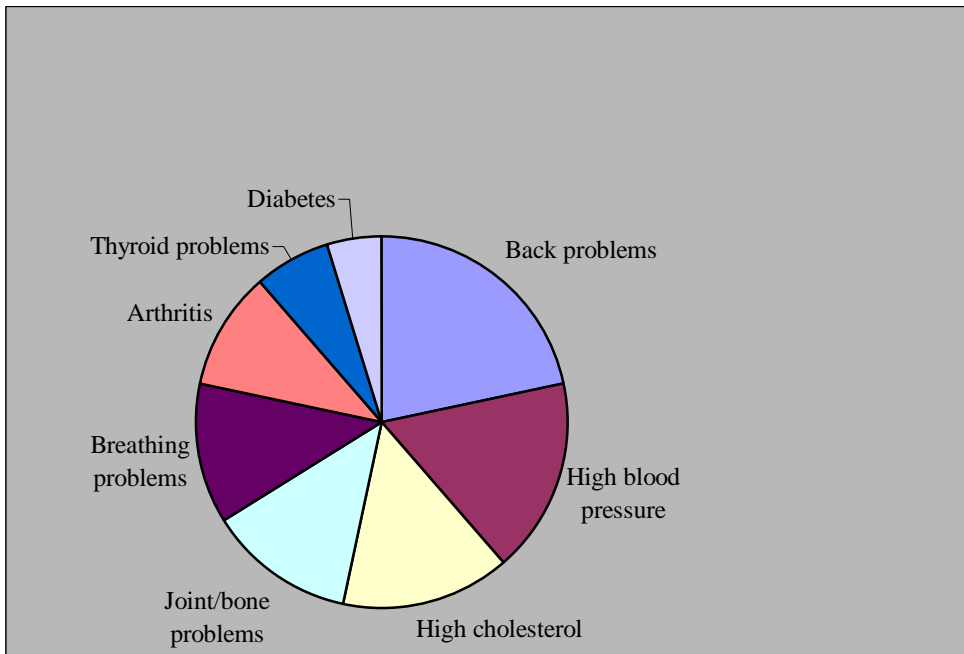


Figure 3: Co-morbid medical conditions in this sample

Table 5: Analysis of variance for predictors of help-seeking level

Predictor Variables	F	df
BMI	.15	1, 117
Medical Conditions Total	.20	1, 107
TFEQ- Disinhibition <sup>1</sup>	2.94 <sup>a</sup>	1, 97
TFEQ- Hunger <sup>1</sup>	5.41 <sup>b</sup>	1, 97
TFEQ- Rigid restraint <sup>1</sup>	1.64	1, 97
TFEQ- Flexible restraint <sup>1</sup>	.78	1, 97
TFEQ- Cognitive restraint	.02	1, 97
PFS- Factor 1 <sup>2</sup>	6.73 <sup>a</sup>	1, 107
PFS- Factor 2 <sup>2</sup>	7.36 <sup>a</sup>	1, 107
PFS- Factor 3 <sup>2</sup>	4.67 <sup>a</sup>	1, 107
PFS- Total	8.01 <sup>b</sup>	1, 107
BSI	.32	1, 107
IWQOL- Physical function <sup>3</sup>	.82	1, 100
IWQOL- Self-esteem <sup>3</sup>	5.91 <sup>b</sup>	1, 100
IWQOL- Sexual life <sup>3</sup>	3.77	1, 100
IWQOL- Public distress <sup>3</sup>	9.83	1, 100
IWQOL- Work <sup>3</sup>	.51	1, 100
IWQOL- Total	3.38 <sup>a</sup>	1, 100
Body Shape Questionnaire	5.28 <sup>b</sup>	1, 106
Shape and Weight Based Self-Esteem	.16	1, 103
Obesity Knowledge Quiz	4.02 <sup>b</sup>	1, 116
<sup>1</sup> MANOVA is marginally significant	<sup>a</sup> p < .10	
<sup>2</sup> MANOVA is significant	<sup>b</sup> p < .05	
<sup>3</sup> MANOVA is ns		

Table 6: Linear Regressions to Predict Help-Seeking Level

Predictor Variable	$\beta$	Adjusted R <sup>2</sup>
BMI	-.06	-.01
Medical Conditions Total	.16	.02*
TFEQ- Disinhibition	.17	.02*
TFEQ- Hunger	.32	.09**
TFEQ- Rigid restraint	.12	.00
TFEQ- Flexible restraint	-.04	-.01
TFEQ- Cognitive restraint	-.01	.06
PFS	.30	.08**
PFS- Factor 1	.28	.07**
PFS- Factor 2	.23	.04**
PFS- Factor 3	.31	.09**
BSI	.31	.09**
IWQOL- Physical function	.22	.04**
IWQOL- Self-esteem	.26	.06**
IWQOL- Sexual life	.46	.20**
IWQOL- Public distress	.27	.06**
IWQOL- Work	.30	.08**
IWQOL- Total	.36	.12**
Body Shape Questionnaire	.31	.09**
Shape and Weight Based Self-Esteem	-.01	-.01
Obesity Knowledge Quiz	.21	.04**

\* $p < .10$

\*\* $p < .05$

**Appendix B: Participants' responses to qualitative item**

ID#	Comment
100	<ol style="list-style-type: none"> <li>1. Personal trainer or scheduled exercise classes: I'd need someone I can trust and someone I like whom can motivate me.</li> <li>2. Additional training/ education in caloric intake and how it relates to exercise.</li> <li>3. Personal chef or nutritionist to aid in food preparation, shopping, and education.</li> </ol>
101	<ul style="list-style-type: none"> <li>-Not be a student</li> <li>-Cardio and weight training 5-6 days a week</li> <li>-The ability to afford weight loss foods and have them available</li> <li>-Be away from everyday stressed that lead me to eat</li> <li>-Have trainer around frequently</li> <li>-Way to keep track of calories and categories of food</li> </ul> <p>My problem is I know what to do, just don't have the time right now.</p>
103	I enjoy fresh fruits, veggies, and grains but I would have to have a strict exercise program to make me feel as if I was burning calories.
106	To eat small portions throughout the day. To include: fruits, vegetables, baked chicken, baked fish, plenty of water, some exercises, walking, a small dessert (sweets are my weakness).
110	Need something that will get and keep me motivated. Excuses are no time and tired.
111	<p>Include all foods. Ability to refer to a simple, uncomplicated "booklet" or guide regarding food choices and exchanges. I'm very busy and eat out a lot. Also, I do a lot of spontaneous meal "planning." Ideal plan? A person preparing my meals! I've had success with ediets.com but the weighing and measuring component of their "cook from scratch" program is cumbersome for a busy person or for a person doing meal preparations for 1 or 2 persons. Ideal plan:</p> <ol style="list-style-type: none"> <li>1. All foods included</li> <li>2. Easy food reference guide</li> <li>3. Quick meal options that aren't cumbersome</li> <li>4. Ability to eat out</li> <li>5. Support person</li> <li>6. Easy exercise program that doesn't take up a lot of time that I don't have!</li> <li>7. Ediets.com on my Palm Pilot!</li> </ol>
112	An employer-endorsed and supported program on-site w/ mini-gym and other fitness programs (i.e., yoga, aerobics). An employer-sponsored "cafeteria" that operates for breakfast, lunch and dinner for employees who work and go to school.
115	A regimen of smaller meals and exercise.
117	Snack items for in between meal times. Small but satisfying meals calorie and taste-wise. Portioned out meal sizes.



118	<p>Exercise daily          Eat more protein and decrease carbs          Since I have a busy schedule, I tend to grab soft pretzels, bagels, etc.</p>
123	<p>No carbs (starches)          Moderate proteins (chicken, fish, lean beef, and pork)          Lots of vegetables, moderate fruit          No soft drinks, coffee, and tea          Lots of water          No frying          Bake or broil food</p>
128	<p>My weight loss program would consist of only three meals, no snacks, a gallon of water per day, a personal trainer, and one night of dancing.</p>
129	<p>A food that was healthy for you, good to taste. You can eat as much as you want without adding calories. But on the other hand, it can be something that when you ate it, it would fill you and you wouldn't even think about food. I guess you didn't ask for a fantasy diet, did you? It would be a plan where you could eat everything you desired but in moderation, a balance. I think Weight Watchers fits my needs the best as far as not feeling like you are on a diet. This is a plan you can do the rest of your life. Unfortunately, it doesn't include a mention transition, having your brain agree to cutting down on portions.</p>
130	<p>No desserts, sugars, sodas, white breads          Moderate intake of starches          Lots of water          Exercise frequently          Daily amount of sleep required          Occasionally one glass of wine          Smaller amounts of food          Slow eating</p>
131	<p>My problem is not what I eat. I don't eat much and I like eating healthy food because I know the importance of nutrition. Since I started school again, I have become inactive and have gained 15 lbs. In seven months. My weight loss program would include exercise. I'm going to start as soon as school is over.</p>
132	<p>I am now on the South Beach Diet and at first the weight came off, but now it slowed down. I started at 305.5 and dropped to 198 and that's where I am today, I started on 9/30/03. My ideal weight program (don't laugh) is to eat any kind of food and dessert without gaining weight (I said not to laugh). I have no idea of what my ideal weight loss plan would be.</p>
133	<p>Something that was easy to follow. Foods that are tasteful. Include some sweets.</p>

135	Learning how to eat properly I think would be the most important. Exercise is also important, but actually having someone, not a book. Start with the basics about foods, go in mixing the different foods all the way to knowing how to select different herbs to cook with instead of using a bunch of salt would be ideal! To me knowledge is the key element to everything. It is also important to be taught proper exercises whether it is the correct way to weight train, to knowing how to run properly to knowing your proper heart rate/ zone to be in to be able to burn fat.
137	Only eat the portion amount that should be eaten by an adult my height and exercise.
200	Personal menus, cooking and physical trainer.
202	It would include a maintenance plan, so that I would learn how to maintain the lower weight. It would be very balanced. Actually it would probably most closely resemble Weight Watchers as I think their program is excellent, but without the neurotic point counting.
204	<ol style="list-style-type: none"> <li>1. Prepared meals- to save me time and so that I wouldn't be desperate to eat in a hurry and binge on bad stuff.</li> <li>2. Regular exercise plan w/ personal trainer (but low cost).</li> <li>3. Healthy meals that are appealing and tasty too.</li> <li>4. Group support of weight loss and sticking to good habits.</li> </ol>
205	It would include exercises that I could do at home and that would not take too much time. I would restrict the amount of food, eating smaller portions but maybe more often if needed. I could substitute some dishes for fruits and vegetables.
207	The ideal weight loss program is the one I am engaged in currently. I have adopted a new philosophy to eating. Previously, I would binge eat when my mom would go out of the house (and I was not under her control), or, once I moved out on my own, I would often eat a lot with friends. I currently do not "diet" in the traditional sense, I just make conscious choices about what kind of foods to eat often and try to have a clear idea of what is a reasonable portion size (i.e., 1 cup of pasta vs. 4). Also, for the last two years I was involved in an effective exercise regimen, working out from 3-5 times a week. Currently, I have stopped exercising due to the pressures of school but plan to re-start in the next few weeks.
208	High in fruits, vegetables, low fat, low carb, three meals daily, two snacks. Exercise- walking 4-5 times/ week and weights 3 times/ week.
210	It would have to include ice cream. It would have to include alternatives to eating lots of fruits and vegetables. I hate eating fruits and vegetables and get sick of them, which is why I lose interest in and stop following most diets I try.
214	Exercise, low-cal, balanced diet (w/ proteins, carbs, and essential nutrients).
300	Change lifestyle, incorporate exercise w/ daily routine, make a positive conscious effort.

302	If I could eat what I want and take some sort of supplement to block fats, calories, and certain carbs that causes me to gain weight and not to have to exercise. I'm lazy after work.
303	<u>Included diet plan</u>
305	Consuming more fruits/ veggies, cutting down on fried foods, exercising much more and leaving those delicious cookies alone.
306	<u>Included diet plan</u>
307	If I could design a weight loss program for myself, it would have a list of foods that I couldn't eat, like fried, sweet, or fatty foods. Then there would be an exercise schedule that I would have to follow everyday. Then I would make a progress report, as though I could grade myself on how my diet is coming along.
308	To be able to eat what I like, good tasting foods, but cut out ½ the calories, and be full when I'm done with my meal. To know that when I would start the weight loss program, I wouldn't get frustrated halfway through and quit! To learn how to make the time, make it work, without seeming like a chore.
309	I think my weight problem might be psychological. I know what to eat and what not to eat. I know what exercises to do. I know how to count calories and the best times to eat. I still can't seem to do the right things to lose weight. I feel like my mind is telling me to diet but holding me back also.
312	My ideal program, which includes a variety of food choices with physical activity with things I enjoy.
314	Something with appetite control and good low calories foods also good low calories beverages. I like to drink a lot of juices and that makes up a lot of my caloric intake.
316	I would need someone to call me everyday and force me to work out. I would need someone to teach me to use holistic foods. I would need a companion to take me shopping and show me what to buy.
317	A chef, a personal trainer, a training program
318	A combination of close to daily exercise and decreased caloric intake. What has worked for me in the past is eating "healthier" (decreased carbs, fats increased veggies) meals (4-5x/day) and exercising at least 6x/week. My reality is that my weight fluctuates between 145-155 pounds depending on how stringently I follow the above regimen. I love food and often think about food, so eating smaller, more frequent meals works for me. Exercise-wise, weight training is integral b/c it raises my metabolism and tones me up. Cardiovascular exercise is also part of my regimen. I was much heavier as a teen (maximum weight was 180 at 18 years old) but the balance I described above has helped me control my weight a bit.

321	Regular exercise through team sports and group activities. I don't enjoy running just to run or going to the gym. But I love sports and competition, this needs to be a more regular part of my life, maybe supplemented by some yoga (I lack flexibility) or other exercise. I always felt that I need the control taken out of my hands- like someone else had all my money so I couldn't buy food or someone else to buy only what is good for me and someone to constantly watch me so I wouldn't sneak binge eat all the time. The above doesn't sound too realistic, so I wish I could find some self-discipline, self-control and self-esteem.
322	It would be one where I had the time to work out on a daily basis. I always try to take steps and take a slight walk on a daily basis but feel too exhausted from my daily routine to do a full workout. I also need to eat healthily (more fish, vegetables, salads, less carbs, and cut out junk food especially late night snacking). I know before when I had the time I lost 38 lbs by watching stringently and working out two hours a day belonging to a gym. When I reached my goal of 118 lbs I could eat whatever I wanted once a week and not feel completely deprived. Since I love food and feel it's one of life's pleasures and you cannot give food up completely like an alcoholic, I feel it is the route for me completely cutting out junk and when I reach my goal eating whatever once a week.
324	I wouldn't want to go through the aggravation of measuring portions, counting calories, or shopping for high-priced groceries. I would like my weight loss program to include healthy meals I can eat while on the go. And it has to taste good!
326	My program would have my three healthy meals and healthy snacks set up for everyday. It would also have fitness classes.
327	To be able to eat anything I want and lose weight. Also to eat healthy to reduce any health problems I may have. I would love to be able to afford a personal trainer.
329	To incorporate "fun" exercises and have a program with like members.
330	Limit the intake of foods Drink water and juices Eat fruit Exercise after work Doesn't have to include breakfast or lunch because I really don't have time to eat! Only when I'm off or get home at night.
331	Something other than walking like rowing or swimming and good meals with meats and vegetables that are easy to prepare.
332	Cleansing Liquids (water, juice, soup) Fruits, vegetables Fish, chicken, turkey
333	I would like to continue to eat the foods that I like, just less, have dessert or a piece of candy, not the entire candy bar. I wouldn't want to eat foods I don't like, I wouldn't be happy. That's about it, just less of the foods that I enjoy and I would like to stop eating after dinner.

337	I think the Weight Watchers diet is effective. My problem is sticking to a food program (not eating chips, sodas, etc.) I eat the wrong things like junk food rather than food. I sincerely agree with the Weight Watchers eating program.
338	Mainly an exercise program because of my age. I'm pretty good at knowing and avoiding fattening foods.
339	My ideal weight loss program would key in on the steps I could start taking to shape the way I feel tomorrow and help me live healthier in the years ahead. The first step would be education. It is very important to understand how being overweight is affecting your body and how proper diet and exercise can help. With the facts learned, you'll be able to feel better now and limit serious problems obesity can cause later. Included would be: eating behaviors and attitudes, nutritional knowledge, medical history, a nutritionist or other health professional, exercise and education.
340	I would like to eat just salads all day with grapefruit juice to drink, crackers for snack, with juice in between meals. My salad- lettuce, tomato, cheese, sunflower seeds, raisons, sometimes meat like tuna or turkey, boiled eggs, onions, hot peppers, and French dressing- which I can't afford.
341	I would like to lose 35 lbs and four sizes or go from an 18 to a 14 and stay that way.
342	Cut back on the intake of food. I do not really need to eat as much as I do. If I really wanted to lose weight, I could do it. I just have to learn to eat differently and less food. If I could do that I would lose weight and exercise, such as walking more.
401	Control of food intake with meals designed for me, without an exercise program. A plan I could be on forever.
402	I am not a breakfast person. I am not hungry first thing in the morning and I dislike all breakfast type foods. I am up at 5-6 a.m. and I am not hungry until 11-11:30 a.m. I'll have a sandwich then. I am not hungry until 4:30-5 p.m. I'll have dinner between 5:30 and 6:30 p.m. and then I do not eat until the next afternoon! I am out every night (7 days) and come home and try to sleep (by 11:30-12 a.m.). I really do not know what would work for me. That is the problem! I need all of my daily requirements made into two meals! And only machines to work out on. I cannot jump around or lie down to exercise; it makes me light headed!
403	A lot of fats would be eliminated, plenty of fresh fruits and vegetables, cut back on red meats and eat more whole grains.
406	It would include chicken, fish (lots of it), some pasta and rice, lots of green vegetables, some dairy, and a few sweets w/ fruits.
407	I would not be able to design a weight loss program for myself. That would have to be done by a professional.
408	Vegetables, fruits, proteins
413	Things to keep off the weight permanently.
415	I would eat less and healthier food, improve my exercises and work out a lot more.

500	I would include instructions on how to prepare your meals not counting calories. I would include exercise to do at the gym and at home.
501	It would be a prepackaged food- easy to prepare w/ high flavor and taste. It would be a plan that I can purchase forever. As for a fitness program, it would start with a "curves" type regimen (30 minutes to run through a number of exercises that touch all body parts). As I lose weight, my program for future would increase testing my strength, stamina and endurance. You mentioned a permanent loss of 20 lbs- is there such a program? The intention starts with a desire for permanency usually never remaining that way. 20 lbs would be a good start, my desire is a 50 lb weight loss.
502	30 minutes daily exercise, all food intake would be healthy, drink 8.8 oz water everyday
504	Ideally I would design a program that would consist of approximately two hours per day of aerobic and strength exercises and adhere to this plan for 5-6 days per week. I have implemented this plan in the past and experienced marvelous results. Realistically, however, I am no longer in a position where this plan would even remotely work since I am pretty much always at work (at times I work 12 hours/day). I would also incorporate more high-quality proteins in my diet as my current food regimen is virtually void of them.
505	I would want to eat numerous times throughout the day. I would want to know exactly what foods I could eat each time so I could lose weight and not be deprived of certain foods. I would want to be able to eat healthy portions and be able to stop eating. I don't want to experience sugar drops or get shaky because I haven't eaten. I would want a meal plan that helped control sugar cravings. I would also like to know exactly what exercises I'd have to do each day to lose weight and tone so my skin looked good after I lots. I would want a plan that doesn't keep me a captive of food. I often feel there are times it grabs a hold of me and runs instead if the other way around. I want to be able to eat "normally" instead of knowing everything that goes in my mouth; it seems keeps me heavy. I would want a plan I could do the rest of my life instead of losing weight and gaining it backs. I would a plan that's easy to follow and that could keep me thin and healthy for the rest of my life. I'm tired of being fat and having my life revolve around "how can I lose weight."
506	Meal planning and exercise.
507	Eating three meals a day that taste good. Including a healthy dessert and not being hungry between meals. Exercising and drinking water.
510	It would include normal foods like fruits, vegetable, chicken, and fish, not restricted foods like cottage cheese, eggs, and yogurt. It would have three main meals and two snacks a day. Would also include some fast food alternatives, either fast food restaurants or frozen dinners for the person on the go.
511	For myself I would like someone to prepare my foods nutritionally. Not packaged foods, real foods.

512	It would allow me to eat several times a day, even if the portions are smaller, so that I don't feel as if I'm starving. It would not have any food type restriction (i.e. fats, carbs), but only a quantity restriction (i.e. grams, calories, ounces). Also it would focus on what I could do to supplement diet (20 min of cardio/ 3 times weekly) or additional items to be ingested (i.e. vitamins) rather than what I would be giving up.
513	It's hard to say. Atkins works and I kind of like it. So, I'd guess that's the ideal weight loss program for me.
514	It would include a personal chef and a personal trainer. I could tell them the flavors I like and they would make foods that imitate that taste but are low in carbs or calories.
515	Foods I can enjoy and be satisfied by. Fun way to exercise. A source of motivation- nutritionist. Herbal and vitamin recommendation. Overall health and weight loss.
516	Plain and simple: Exercise at least half hour every day. Eat more fruits and veggies. Cut out all sweets and greasy foods.
518	First: Exercise daily (a.m.), yoga instead of aerobic. Take vitamins and herbal supplements Eat Total cereal because of the vitamins Drink at least 40 ounces of water daily Drink lots of teas, preferably decaffeinated Complete fruits with combinations (i.e. mango, orange, kiwi) Fish 3x per week Turkey, poultry, wheats, yogurts Red meat once a week Obey and not eat after 8 p.m. - only decaf liquids
519	Exercise, eat smaller portions, eat more fruits/ vegetables, support group, and personal trainer.
522	I would design a weight loss program that did not involve counting calories or any other type of recording because I can never keep up with that type of stuff. The program would probably include already-prepared meals, whether I prepared them myself or not because that would make it easier for me to keep track of what I was eating. There would be no restriction with the exception of portion size.
526	More exercise and a strict vegetarian diet.
527	It would be include exercise along with watching calories and trying to monitor my intake of foods, and definitely cutting down on sweets.
528	Personal chef and personal trainer

530	I would be able to feel full and still have some fattening desserts or little desserts. It would be easy to prepare for my children and myself. My children would not mind eating like me. I would eventually lose weight and gain energy to start exercising. It would be a way of life, not a diet.
531	Vegetarian diet- low fat, low cholesterol, low calorie Exercise regimen at least five times weekly
533	Change foods from fried to baked, no sweets, diet sodas, low carbs, plenty of exercise, and take proper medications as directed.
534	Use self control, eat right, exercise
535	I really don't have one. I guess I wouldn't eat any fatty foods.
536	If I designed a weight loss program, I would be surrounded by good, spirited people that I feel confident {would} make the other people feel special. By not actually making my friends feel overweight they'll actually lose weight without thinking about it like doing something constructive- laughing, swimming, playing etc.
539	Cut daily intake in half
540	I would have a nutritionist, a trainer, and exercise machines. The nutritionist would help me plan out my meals and the trainer would show me the proper way of doing exercises. It would be a small and intimate atmosphere containing about 4-5 people.
541	If I could design an ideal weight loss program for myself, it would start with exercise, calorie watching, less television, and more activities.
542	A lifestyle like Oprah: 1. Cook 2. Personal trainer 3. Nutritionist 4. Dr. Phil at my disposal
543	Plenty of water, salmon/ tuna, salad, cantaloupe/ oranges/ grapes/ melon/ apples, chicken breast, spinach, multigrain muffins, wheat bagels, fruits shakes/ juices, cashews/ nuts
544	Low carbs and no sugar, a lot of water
546	Bread Low fat sweets Ways to prepare foods. What I can cook and what I cannot use.
547	I have no idea at this point.
548	I am usually good in the morning. I am a coffee drinker; I get up at 6:15 on weekdays, drink coffee, skip breakfast and have a muffin or bagel around 9 a.m., lunch at 2 p.m. and dinner around 7 p.m. I between I snack and crave sweets. I nibble and sample when I cook. I do better sometimes during the weekend. When my husband is off and I spend time with him, he doesn't eat like I do. When I crave something like a snack, I ask him if he eats. I eat if he doesn't. I'll eat a piece of gum or a hard candy.



551	Though I've found it difficult to stick with organized programs, I do understand the importance of a support system to losing weight. So the primary component would be some kind of counselor or coach who would always be available. The program would also have an exercise component and meal planning options that focused on easy preparation (low fat, reduced calorie, low carb). Tracking weight and inches lost would be helpful and maybe a rewards component too (like clothing or books or points toward something).
552	I would get up in the am, exercise, maybe walk or jog, eat cereal/skim milk and fruit or a breakfast sandwich (eggs/sausage and muffin). Lunch salad with turkey/soup. Fruit for snack, fruit cup or mixed fruit. Steak/baked potato/ salad and cabbage for dinner and a personal trainer for weight lifting.
553	For many years my weight has fluctuated. I was always an athlete of some sort, from gymnastics to Division 1 tennis at Temple. Despite the physical activity, I was never in perfect shape. I believe that the key to being a healthy weight and being in good shape is 1. Exercise and 2. Really knowing about what you put in your mouth. I have read extensively about food and nutrition in the past three years and with my increased knowledge of food, have lost weight. People need to LEARN about food. Period. I know about good fat and bad fat. I know about processed foods and all the terrible corn oil and partially hydrogenated mass that is in almost all packaged food. That said and done, I watch what I eat and exercise regularly. I find the myriad of diet fads and weight loss remedies to be disgusting.
600	Less sugary foods, more fruit, exercise. Would include diet pills.

## Vita

Rachel A. Annunziato was born on May 26, 1976 in New Haven, CT. She completed her undergraduate degree in Psychology at Yale University. During this time, Ms. Annunziato served as a research assistant on several projects in the Department of Psychology and at Yale School of Medicine. She furthermore met and began working with Sigal Barsade, Ph.D. at Yale School of Management. Currently, Ms. Annunziato continues to work as a consultant for Dr. Barsade's research now based at Wharton School, University of Pennsylvania.

After graduating, Ms. Annunziato attained a Master's Degree in Psychology and Education at Teachers College Columbia University. She immediately started her doctoral studies at then MCP Hahnemann University, currently Drexel University, under the mentorship of Michael R. Lowe, Ph.D., an obesity and eating disorders specialist. While a member of Dr. Lowe's lab, Ms. Annunziato coordinated four grant-funded projects, served as a group therapist in two studies, contributed to manual development, participated in outcome assessment for the Renfrew Center and Weight Watchers®, as well as supervising fellow students.

Ms. Annunziato simultaneously worked as a research assistant and clinician at The Children's Hospital of Philadelphia, Division of Oncology studying psychosocial interventions and assessment of children undergoing cancer treatment, their families, and pediatric cancer survivors. Ms. Annunziato developed and taught courses in "Introduction to Psychology," "Abnormal Psychology", and "Child Psychopathology" while a graduate student at Drexel University.

Currently, Ms. Annunziato is completing a post-doctoral fellowship at the Mount Sinai School of Medicine in New York City. She is working jointly in the Weight and Eating Disorders Program and The Rancanti Liver Transplant Unit conducting research and providing clinical services in both areas. She has been a co-author on five submitted publications, listed below, and is the first author or a co-author on a number of manuscripts on preparation. She has also been the first author or a co-author on over 25 conference presentations. Ms. Annunziato resides in NYC with her fiancé Matt Schnepf and their pug Blue.

### Submitted Publications:

- Lowe, M.R., Davis, W.N, Lucks, D.L., Annunziato, R.A., & Butryn, M.B. (submitted). Body mass index and weight suppression independently predict weight gain in bulimic patients during hospitalization.
- Alderfer, M.A., Cnaan, A., Annunziato, R., & Kazak, A.E. (submitted). Patterns of posttraumatic stress symptoms in parents of childhood cancer survivors.
- Shemesh, E., Yehuda, R., Rockmore, L., Shneider, B.L., Emre, S., Bartell, A.B., Schmeidler, J., Annunziato, R., Stuber, M.L., Newcorn, J.H., (submitted). Assessment of depression in medically-ill children presenting to pediatric specialty clinics.
- Shemesh, E., Newcorn, J.H., Rockmore, L., Shneider, B.L., Emre, S., M.D., Gelb, B.D., Rapaport, R., Noone, S.A., Annunziato, R., Schmeidler, J., & Yehuda, R. (submitted). Comparison of parent and child reports of emotional trauma symptoms in pediatric outpatient settings.
- Lowe, M.R., Davis, W.N, Annunziato, R.A., & Lucks, D.L. (2003). Inpatient hospitalization for eating disorders: outcomes during treatment and short-term follow-up. *Eating Behaviors*, 4, 385-397.

