

COMPARISONS OF WEIGHT-LOSS BEHAVIOR  
AMONG DIETERS USING TFA SYSTEMS™

by

Gerald Lynn Hayes

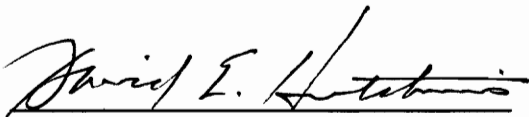
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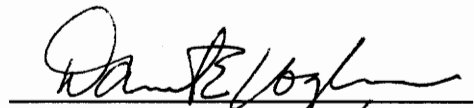
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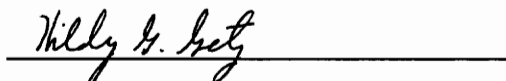
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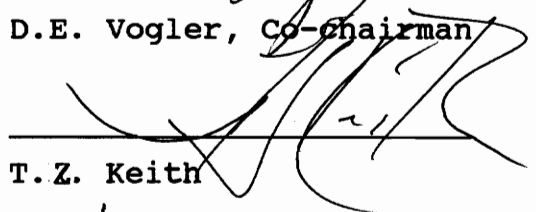
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(ABSTRACT)

The purpose of this study was to compare dieters' behavior patterns at critical times in the weight-loss process: beginning of treatment, end of treatment, and one year posttreatment. Dieters' thoughts, feelings, and actions were assessed after lapses in "high-risk" situations.

A review of the extant literature provided insight into the interpersonal, environmental, and intrapersonal risk factors for weight-loss relapse. The Risk For Relapse Questionnaire was developed to assess dieters' probability of relapse. Data were collected by personal interviews.

The TFA Clinical Interview was contained in the interview protocol and provided qualitative and quantitative data relevant to each dieter's thoughts, feelings, and actions. A comparison of individual and group thoughts, feelings, and actions contributed to the overall conclusion that the majority of dieters make short-term changes in treatment but return to maladaptive behavior patterns during post weight loss.

The results of this study indicate that dieters before and after treatment have the highest probability of relapse, whereas dieters at the end of treatment engage in behaviors conducive to weight-loss maintenance. Dieters at the beginning of treatment were guided by negative feelings leading to impulsivity. Positive thinking behavior increased and feelings decreased by the end of treatment. By one year posttreatment, 87% of dieters had relapsed and returned to maladaptive behavior. The heavy emphasis on positive actions regardless of negative feelings separated the 13% of weight-loss maintainers from relapsers.

TFA Systems™ provided a systematic method to evaluate specific thoughts, feelings, and actions relevant to dieters' responses after lapses in "high-risk" situations. Analysis of behavior patterns supported the need for weight-loss programs to require long-term maintenance follow-up.

## ACKNOWLEDGEMENTS

The committee members were carefully selected because of my perception of them as creative and dedicated scholars and clinicians. Their interest in TFA Systems™ being applied to post weight loss was felt throughout this project. My appreciation is immeasurable for the genuine words of encouragement, time and energy, and leadership that Dr. David Hutchins shared with me. It was Dr. Daniel Vogler's comment to me once--"Talk is cheap"--that never left my mind as it inspired productivity. In retrospect, I see that these two individuals were instilling in me that thoughts and feelings are requisites, but actions ultimately get the job done. My confidence was further built by Dr. Tim Keith's guidance in research methodology. The clinical experience and expertise of Drs. Hildy Getz and David Hartman kept me aware of the study's relevance and challenged me toward strong applicability.

This project was made possible by the volunteer dieters who shared their personal struggles with me. In return, my wish is that the study's results, in some way, will help enhance their journey through weight-loss maintenance.

My gratitude goes out to Carolyn Harlowe and the staff at RMNCC for their friendship and interest in helping me expand our insight into obesity treatment and post weight loss.

My family anchored the efforts within these pages. I am eternally grateful to my wife, Denise, for her love and toleration for the long-term focus that this project required. The timely birth of our son, Hunter, eased tensions and allowed me to become even more determined to finish this project in order to increase quality time with both of them.

Finally, this dream has become a reality largely because of my mother, Rachel Hayes. I hope to share with my son the unconditional love and support throughout academic endeavors that my mother has given me. I feel fortunate to have inherited a portion her optimistic outlook on life which greatly helped in times of self-doubt.

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## CHAPTER ONE

### INTRODUCTION

Americans are obsessed with dieting! Weight Watchers<sup>®</sup>: Nutri/System<sup>®</sup>: Jenny Craig<sup>™</sup>: Optifast<sup>™</sup>: Numerous weight-loss programs exist and dieters' endless search for a "thinner happiness" keeps the \$33-billion-a-year diet industry booming. Approximately 30% of women and 25% of men are obese and longitudinal data indicate that the prevalence is increasing (Foreyt, 1987; Williamson, Kahn, Remington, & Anda, 1990). A recent Gallop poll revealed that 31% of American women between the ages of 19 and 39 diet at least once a month. And they repeat this process again and again because the real battle is not losing weight but keeping it off.

The personal costs, physical maladies, social stigma, and family discord place overeating and obesity alongside other addictions such as drinking, drug use, gambling, smoking, and sex (Orford, 1985; Stall & Biernacki, 1986). As with some other substances such as alcohol, food provides a potent and rapid means of changing one's mood and sensations because of both direct physiological effects and learned expectations (Orford, 1985); however, the long-term negative consequences of overeating such as obesity present an enormous amount of personal pain. As with other

addictions, obesity treatment is available but the relapse rates remain astonishingly high. Researchers and health professionals have become well aware of the difficulties clients have trying to lose weight permanently. Consistent throughout the literature is that most treatment programs work, especially those that incorporate behavior modification, but up to 90% of those clients who lose weight--no matter how they do it--eventually regain it (Wadden, Stunkard, & Liebschutz, 1988).

Numerous studies have focused on the treatment of obesity, and because of the high relapse rates there is clear need for further research on weight-loss maintenance (Brownell & Foreyt, 1986). Most obesity research has merely reported number of pounds lost during treatment; follow-up studies have reported the percentage of weight regained. Only a small number of posttreatment studies have focused on the behaviors that some clients use to maintain lost weight. To date, no information exists on the individual thoughts, feelings, and actions of dieters as they progress through and beyond weight-loss treatment. Researchers have just begun to respond to the need for information on weight-loss maintenance since most attention has been given to developing comprehensive weight-loss programs.

Marlatt and Gordon (1985) state that the process of relapse begins when clients fail to adequately recovery from

lapses in "high-risk" situations in which they are exposed to the addictive stimulus such as food or alcohol. As a result, maintenance of weight loss is jeopardized when clients repeatedly experience overeating and decreased self-efficacy in individually-defined "high-risk" situations, such as work-related stress or a dinner banquet. During weight-loss treatment, especially if the diet is a supplemented fast, clients are able to abstain from eating in tempting situations or avoid these situations altogether. After treatment, however, clients inevitably lapse in these situations. Being prepared before a "high-risk" situation is important, but how the client handles the situation after "giving in" is the deciding factor as to whether relapse will eventually occur (Brownell, Marlatt, Lichtenstein, & Wing, 1986).

The effort to improve the maintenance of weight loss will be aided by increased understanding of the interpersonal, environmental, and intrapersonal risk factors associated with regaining lost weight (Brownell & Wadden, 1986; Chiauuzi, 1991). We have little information about how these factors interact to cause weight regain. Particularly absent in the literature is an analysis of clients' individual behavior one year posttreatment, a time when up to two-thirds or more of all dieters have already begun the relapse process (Rosenthal & Marx, 1981; Wilson & Brownell,



1980). Follow-up studies exist and guidelines are recommended, but virtually no attention has been given to individual behavior in an attempt to isolate the thoughts, feelings, and actions of dieters before and after weight-loss treatment. By obtaining more specific information about these clients as they progress beyond treatment, further insight into the relapse process could not only help identify the breakdown in individual adaptive behavior but also have a bearing on eliminating weight-loss relapse.

#### CONCEPTUAL FRAMEWORK

Numerous conceptual frameworks have been applied to the complex variables relating to obesity. Research has extensively examined the physiological, socio-economic, and familial aspects of obesity (Bray, 1986; Brownell, 1984; Brownell & Foreyt, 1986; Rand & Kuldau, 1990). An abundance of information has been learned, but global investigations into obesity are falling short of correcting the problem. Generalizations and generic treatment recommendations pertaining to obesity have been and continue to be made because research has not accounted for individual client differences. Discovering an accurate awareness of client differences in thoughts, feelings, and actions using TFA Systems™ was the impetus for this study.

The conceptual framework of this study was centered on the effects of thinking, feeling, and acting variables on the behavior of dieters during post weight loss. Researchers and counselors have provided various forms of treatment to deter obesity, but the problem of relapse after termination of treatment remains a major obstacle to the long-term success of weight-loss programs (Rosenthal, Allen, & Winter, 1980).

Marlatt and Gordon (1980) describe the process of relapse as follows: (a) Clients find themselves in a "high-risk" situation in which they are exposed to the addictive stimulus such as a highly-desired food or alcohol; (b) they do not have a coping strategy with which to avoid the stimulus and simultaneously anticipate pleasure from its use; (c) they use the substance, feel guilty and lose self-control; and (d) as a result of thinking that they have failed, they are more likely to continue abusing the substance. For the adult who just successfully completed a program, good intentions to maintain lost weight are soon diminished after several lapses. Overeating episodes in "high-risk" situations can lead to decreased self-efficacy, guilt and shame, and, consequently, more overeating. It has become imperative to understand more about the cognitive, affective, and behavioral components of the posttreatment behaviors of adults after they experience inevitable lapses.

The TFA Model, developed by Hutchins (1979), explains individual behavior in terms of the interaction of thinking (T), feeling (F), and acting (A). TFA Systems™ (Hutchins & Vogler, 1988) was developed to describe behavior in specific situations and to prescribe change for maladaptive TFA behavior. Examining the interaction of one's thoughts, feelings, and actions makes both the integration and direction for intervention more lucid for the counselor and the individual.

Hutchins and Vogler (1988) continued to expand and refine TFA Systems™ so as to assist others with a practical application of assessing and changing thoughts, feelings, and actions in specific problem situations. TFA Systems™ provides a working conception of the effects of thoughts, feelings, and actions in specific problematic situations which makes direction for change more precise. Less guesswork and more accurate specificity provide counselors with heightened ability to therapeutically assess and intervene on clients' behalf. Planning state-of-the-art intervention strategies becomes more sensitive to the individual response to the specific situation. An accurate awareness of a client's TFA behavior allows the counselor to confidently intervene with individually-tailored strategies as opposed to a generic, "one-size-fits-all" approach.

### **ASSUMPTIONS**

There were four assumptions that provided a starting point for this study. The first assumption was that even though obesity is a heterogeneous disorder it is the result of overeating. The second assumption was that TFA Systems™ assesses the interaction of thoughts, feelings, and actions in quality and intensity. The third assumption was that the measure of assessment is situationally specific. The fourth assumption was that TFA Systems™ is an appropriate method to use in assessing the behavior of dieters at the beginning of treatment, end of treatment, and one year posttreatment.

### **STATEMENT OF THE PROBLEM**

Although the multidimensional effects of obesity and dieting on the individual are well documented, attention has not been given to the individual thoughts, feelings, and actions of dieters during post weight loss. The effects of weight-loss clients' thoughts, feelings, and actions impact greatly on whether they maintain or regain lost weight after treatment.

Generic treatment guidelines have been established (Weinsier et al., 1984) and relapse prevention techniques recommended (Marlatt & Gordon, 1985), but attention is needed on individual behavior which may provide clues as to why most dieters fail to maintain lost weight.

Inadequately recovering from lapses in "high-risk" situations seems to be a significant point at which the process of relapse begins. In "high-risk" situations, a client's behavior, measured by the interaction of thoughts, feelings, and actions, changes during the process of weight loss but soon returns to previous maladaptive patterns after weight-loss treatment. Using TFA Systems™, the procedural problem of this study was to compare the behavior of dieters at three critical times: beginning of treatment, end of treatment, and one year posttreatment.

#### **PURPOSE**

The general purpose of this study was to document the interaction of thoughts, feelings, and actions of dieters at the beginning of treatment, end of treatment, and one year posttreatment. Specifically, the investigator:

1. Synthesized the extant literature.
2. Described the interpersonal, environmental, and intrapersonal risk factors associated with weight-loss relapse.
3. Isolated characteristics and conditions unique to a dieter's behavior.
4. Identified the thoughts, feelings, and actions of dieters after lapses in "high-risk" situations.

5. Compared the thoughts, feelings, and actions of dieters at the beginning of treatment, end of treatment, and one year posttreatment.

### RESEARCH QUESTIONS

Three specific questions were addressed in order to fulfill the purposes of this study. Ancillary questions served as guides for assessment and investigation of the general questions.

1. What are the primary research-based variables related to weight-loss relapse?

a. What is weight-loss relapse?

b. How does weight-loss relapse compare with relapse in other addictions?

2. What is the relation of weight-loss relapse risk factors on three critical times (beginning of treatment, end of treatment, one year posttreatment) in the weight-loss process?

a. How do interpersonal risk factors for relapse relate to the three critical times in the weight-loss process?

b. How do environmental risk factors for relapse relate to the three critical times in the weight-loss process?

c. How do intrapersonal risk factors for relapse relate to the three critical times in the weight-loss process?

3. What are the thoughts, feelings, and actions of dieters after lapses in "high-risk" situations?

a. What TFA patterns are present at the beginning of weight-loss treatment?

b. What TFA patterns are present at the end of weight-loss treatment?

c. What TFA patterns are present one year posttreatment?

#### **DELIMITATIONS**

1. The researcher purposely selected adult dieters who were either entering or completing treatment or had successfully completed a designated 26-week weight-loss program in Southwest Virginia.

2. This study only focused on those clients who entered treatment moderately obese and who were also repeat dieters, i.e., those who had previously dieted at least five times.

3. This study focused on those clients who had not entered into another weight-loss program after the initial 26-week program.

4. This study was delimited in focus to dieters' self-reported behavior after lapses in "high-risk" situations at the beginning of treatment, end of treatment, and one year posttreatment.

### LIMITATIONS

1. Because the clients were from the same weight-loss program in one geographical area of Virginia and were not randomly selected, the results must be cautiously generalized to other regions and to the population of obese adults as well.
2. The study was time limited to one year posttreatment; longitudinal studies would be needed to note changes beyond this time period.
3. Because the researcher was also the counselor at the designated weight-loss program, the accuracy of assessments may have been influenced.
4. Behavior was assessed retrospectively by the subjects which, because they are relying on recall, may have affected their accurate account of some aspects of behavior.

### DEFINITIONS

The following were operational definitions of terms relevant to this study:

Addiction - a complex, progressive behavior pattern having biological, psychological, sociological, and behavioral components. There is an overwhelmingly pathological involvement in or attachment to it, subjective compulsion to continue it, and reduced ability to exert personal control over it (Donovan, 1988).



Adult - a person who has attained maturity (Webster, 1989). Legally, an adult is a person who is at least 18 years of age.

Behavior - the interaction of thoughts, feelings, and actions (Hutchins, 1979).

Client - a person who allows a counselor to deliberately intervene in his life to resolve concerns so as to live more effectively.

Diet - a low-calorie plan containing fewer calories than needed for the maintenance of weight.

High-risk Situation - an event identified by the client that is associated with overeating (e.g., negative emotions, social occasions). During post weight loss, "high-risk" situations pose threat for relapse unless approached adequately before and after the situation (Marlatt & Gordon, 1985).

Lapse - a process, behavior, or single event of overeating which may or may not lead to the state of relapse (Marlatt & Gordon, 1985).

Maintenance - the time period after weight-loss treatment when clients are attempting to keep off lost weight (Kayman, Bruvold, & Stern, 1990).

Maintainer - a client who was at least 20% overweight but has reduced and maintained the reduced weight for one year (Kayman et al., 1990).

Moderate Obesity - weight that is 30% to 60% above ideal body weight (Metropolitan Life Insurance Company, 1983).

Obesity - weight that is 20% above ideal body weight (Foreyt, 1987).

Relapse - the response to a lapse that includes a return to overeating resulting in weight gain. Reliable measures do not exist, but relapse can be defined as the maladaptive response to lapses that determines future lapses (Brownell et al., 1986).

Relapser - a client who was at least 20% overweight, had previously lost 20% of his/her weight, but regained it (Kayman et al., 1990).

TFA Model - a theoretical model devised by Hutchins (1979, 1982, 1984) that illustrates and explains one's thoughts, feelings, and actions in specific situations.

TFA Rating - the operational thought, feeling, and action responses obtained from the TFA Triangle.

TFA Systems™ - a comprehensive approach to assessment, description, intervention, and resolution using the TFA Model (Hutchins & Vogler, 1988).

TFA Triad - any one of 27 triangles bound by the TFA Triangle and representing one's behavior in a specific situation. The TFA Triad is the resulting triangle that emerges when one's behavior is plotted on the TFA Triangle (Hutchins & Cole, 1992).

TFA Triangle - a triangular-shaped figure with vertices designated as T (thinking), F (feeling), and A (acting) plotting one's interaction of thoughts, feelings, and actions.

Treatment - any formal plan to help promote weight loss or alleviate obesity. Treatment may or may not include the elements of nutritional counseling, medical supervision, and behavior modification.

#### **NEED FOR THE STUDY**

Our national concern with losing weight borders on a collective obsession. We want to look good regardless of the monetary cost or temporary pain. With growing concern to improve one's health, it's hard to say whether Americans want to lose weight primarily for cosmetic gains or better health. Nevertheless, at any given time 65 million Americans are dieting (Begley, 1991) and it is estimated that in 1995 \$51 billion will be spent on a wide range of weight-loss products and services (U.S. Weight Loss and Diet Control Market, 1989). The desire and need to lose weight continue to be on the rise in this nation.

Obesity is clearly a medical problem and results in increased mortality. Moderate obesity increases mortality by 42%, independent of the sex of the individual; morbid obesity increases mortality by 79% in males and 61% in

females (Kulesza, 1982). The prevalence of obesity continues to increase despite our knowledge of the associated health hazards such as hypertension, diabetes, hyperlipidemia, sleep apnea, and heart disease (Bray, 1986; Brownell, 1984). Countless studies document the medical complications resulting not only from obesity but also from the continuous cycle of losing and regaining weight. Prevalence of the disorder varies according to gender, race, and social class (Rand & Kulda, 1990).

While there is need to know the tradeoffs of being obese, there is even greater need to know more about the client who is faced with the great challenge of maintaining lost weight. Knowledge is needed as to the operation of those thoughts, feelings, and actions involved when an individual responds to "high-risk" situations by compulsively overeating which leads to guilt and self-shame and eventually more compulsive overeating. Presently, no data exist regarding coping performed by dieters experiencing relapse crises (Grilo et al., 1989).

For decades, researchers have suggested guidelines for obesity treatment and recently there has been growing interest in relapse and relapse prevention. Obesity research is abundant and seems complete but what is missing is emphasis on the individual and specific behavior once treatment is completed. Although the problem of relapse

plagues all areas of substance abuse, it is particularly a problem for obese people because repeated weight loss followed by weight gain may have detrimental health, metabolic, and psychological consequences (Kayman et al., 1990).

Obese people are perceived as incompetent, unmotivated, apathetic, lazy, and nonproductive (Larkin & Pines, 1982). Clinical impressions suggest that these stereotypes are far from the truth. It is noted, however, that the typical client feels "miserable" and "fed up" with the constant battle to monitor weight. Once in treatment, the obese adult gains confidence and self-pride vowing never to regain the lost weight; after treatment, however, for unknown reasons the client returns to old eating habits which lead to perceived loss of control and inevitable relapse.

The long-term results of the treatment of obesity are very poor. Only a small number of clients who enter weight-loss programs maintain their target weight (Grilo et al., 1989). The relapse process begins shortly after treatment and eventually clients find themselves even heavier than before as they enter yet another weight-loss program. Periodic follow-ups in groups are the only contacts with clients in most studies; what's needed is intensive assessments of clients very soon into weight-loss maintenance (Brownell et al., 1986). Up to one year after

treatment is critical because many clients have already begun the relapse process because of their inability to approach and recovery from lapses. Research emphasis must be placed on this third subprocess of therapeutic change, post weight loss, in order to better understand clients (Collins, Rothblum, & Wilson, 1986).

To assist programs, the behavior patterns of dieters can be examined and used to create description assessments of thoughts, feelings, and actions once formal weight-loss treatment is completed. Understanding more about how a client's individual behavior influences relapse may interrupt the repeated cycle of losing and regaining weight. From clients in post weight loss, we could learn more about how they respond after "high-risk" situations which will largely determine whether loss of control and relapse are experienced. Based on research (e.g., Brownell et al., 1986; Grilo et al., 1989) and clinical observations, the major problem of clients' inability to recover from overeating in self-defined "high-risk" situations must be addressed. Once weight is lost, many clients vow never to overeat again; therefore, when overeating does occur decreased self-efficacy and feelings such as shame lead them to relapse. An assessment of the individual through and beyond treatment in specific problematic situations may therefore help

understand how adaptive change made in treatment soon diminishes during post weight loss.

The area is ripe for studies on issues ranging from the natural history of relapse to methods that clients might employ in "high-risk" situations (Brownell et al., 1986). A wealth of knowledge may be gained by increasing awareness of those factors that contribute to clients' reactions in "high-risk" situations that are associated with overeating. Discovering the interaction of thoughts, feelings, and actions of clients at critical times may significantly impact the refinement of existing weight-loss programs. At present, criteria for matching individuals to particular weight-loss programs do not exist (Brownell & Wadden, 1986). Specific needs after treatment are not being met as clients find themselves faced with potential relapse because of their inability to cope effectively in situations that are associated with overeating. Obese clients continue to receive generic weight-loss treatment and are often unassisted during weight-loss maintenance.

Using TFA Systems™, this study was aimed at narrowing the focus to dieters' thoughts, feelings, and actions at the beginning of treatment, end of treatment, and one year posttreatment. How dieters' behavior changes in treatment, and whether these changes are long lasting, should shed light on those specific thoughts, feelings, and actions that

are conducive to weight-loss maintenance. To fully understand why most individuals regain weight again and again, it is imperative to discover how the behavior of all dieters, including relapsers and maintainers, changes during post weight loss. Only then can we attempt to prevent future weight-loss relapse by improving treatment and maintenance strategies.

#### **ORGANIZATION OF THE STUDY**

Chapter Two contains a review of the literature related to the risk factors associated with weight-loss relapse. TFA Systems™ is introduced along with relevant theoretical and clinical issues.

Chapter Three presents the instrumentation and research design. This includes a description of the Risk For Relapse Questionnaire and other instruments used in data collection and assessment.

Chapter Four includes the results and analysis of the data. Factors presented in the literature review are supported with the findings of this study. Results are factually based.

Chapter Five interprets findings of this study. Subjective observations, conclusions, and recommendations for weight-loss programs and maintenance are discussed.



## CHAPTER TWO

### REVIEW OF LITERATURE

In this chapter the existing literature is covered as it relates to the purposes of this study. First, the extant literature on weight-loss maintenance and relapse is reviewed. Second, the relation of interpersonal, environmental, and intrapersonal risk factors on the thoughts, feelings, and actions of dieters is described. Third, TFA Systems™ is introduced as a means of assessing the thoughts, feelings, and actions of dieters' behavior at three critical times: beginning of treatment, end of treatment, and one year posttreatment.

#### DEFINITION AND ASSESSMENT OF OBESITY

Our national obsession with thinness, weight loss, and weight-loss maintenance is on the rise. Currently, compulsive overeating is not only being classified as an eating disorder alongside anorexia and bulimia, but it's also the top eating disorder among adolescents and adults (Williamson, 1990). According to the second National Health and Nutrition Examination Survey (NHANES-II), 26% of U.S. adults, or about 34 million people between the ages of 20-75 years, are obese (Van Itallie, 1985). More than 65 million men and women are dieting at any given time, yet almost

every dieter's goal of permanent weight loss fails to be obtained.

It is estimated that 90% to 95% of all dieters regain the majority if not all of their lost weight within as little as one to two years (Kramer et al., 1989; Wadden, Stunkard, & Liebschutz, 1988). Stalonas, Perri, and Kerzner (1984) reported a five-year follow-up in which the "typical pattern was to regain all the weight lost during treatment" (p. 181). It has become imperative that we stop the process of weight cycling so as to decrease obesity-related problems such as hypertension and increase the quality, and in many cases, the longevity of life (Bray, 1986).

What appears to be a personal problem, a matter to be dealt with only by the individual, becomes an issue for work settings, school systems, family members, physicians, counselors, dietitians, and government and state agencies. Many people are affected since relapsing from weight loss can not only exacerbate chronic problems such as hypertension but also create acute problems like marital discord (Brownell & Foreyt, 1986).

### **Definition**

Obesity can be medically defined as excessive adipose (or fat) tissue (Bellack & Williamson, 1980) frequently resulting in impairment of health. Broadly defined, obesity

represents an excess of stored body fat from caloric intake that is greater than the caloric expenditure required for physical activity, somatic maintenance, and growth (Jeffrey, Dawson, & Wilson, 1988). In clinical studies researchers have used a minimal criterion of 20% overweight to classify someone as obese. Bray (1986) advocates using 30% over ideal weight (moderate obesity) as the criterion for clinical obesity since some epidemiological research has demonstrated that there is no significant increase in medical disorders for individuals under this percentage.

### **Assessment**

The measurement and evaluation of body fat levels has been an area of concern of health professionals for decades. Exact determination of body fat requires sophisticated procedures available only in research facilities. Some laboratory methods such as nuclear magnetic resonance imaging and total body electrical conductivity are expensive, clinically inconvenient and unavailable, and time-consuming (Bray, 1986). Because of simplicity and quickness, professionals have relied on height/weight tables such as the 1983 Metropolitan Life Insurance Table. These tables have been widely used but they do not distinguish between weight ranges for various ages, nor do they

distinguish between weight that is fat and weight that is muscle, bone, or fluid (Bray, 1986).

Because body composition varies among persons of the same height and weight (e.g. athletes), Body Mass Index (BMI) is commonly used to more accurately assess obesity. Appropriate for adults, the BMI uses body weight in kilograms divided by height in meters squared (Bray, 1986). The BMI is highly correlated with body fat measured by other more precise laboratory methods (Bray, 1986). One's BMI is independent of height and is extremely useful for descriptive or evaluative purposes.

For the purposes of this study, the 1983 Metropolitan Life Insurance Scales were used to assess obesity at the designated treatment site. Using this measurement, all subjects in this study were diagnosed moderately obese upon entering the designated weight-loss program.

#### **VERY-LOW-CALORIE DIET (VLCD)**

While comprehensive behavioral treatment programs are most helpful with mildly obese clients, for those who are moderately to morbidly obese, one promising trend, very-low-calorie diets (VLCD), has emerged (Foreyt, 1987). A VLCD usually consists of 200-800 calories/day, primarily of protein along with vitamin, mineral, and electrolyte supplementation. These diets result in rapid weight losses

over relatively short periods of time for those who are 50 pounds or more overweight.

Optifast™ is one such diet that uses a high-protein liquid supplement to produce weight losses of about 45 pounds in 12 weeks, which is three times the amount of loss in current behavioral treatment programs that do not use liquid supplements. The programs that endorse Optifast™ are many times expensive, therefore limiting client participation to those who can afford it. The VLCD appears safe when clients are monitored regularly by physicians (Wadden, Stunkard, & Brownell, 1983). Although these large average weight losses have been encouraging to counselors, early studies have shown rapid regain following termination of the VLCD, even when behavioral training is used (Foreyt, 1987; Wadden, Stunkard, & Liebschutz, 1988). Despite their popularity, very-low-calorie diets offer no advantages as clients regain two-thirds of their lost weight within a year (Brownell, 1989).

Combining behavioral approaches with the VLCD is encouraging during weight loss, but follow-up studies continue to show clients eventually regaining lost weight (Foreyt, 1987). Long-term therapeutic results with total fasting are very poor. Weight regain is obligatory and the internal signals to overeat may be exacerbated (Blackburn, Lynch, & Wong, 1986). The maintenance of weight loss becomes

a key issue as the client attempts to effectively practice and implement the behavior changes and nutrition education received during a medically-monitored, multidisciplinary, supplemented-fasting program.

### **THEORIES OF OBESITY AND WEIGHT REGAIN**

Numerous attempts have been made to understand obesity, both from a physiological and a psychological perspective. The focus has shifted from unitary explanations (e.g., the "obese" personality) to models viewing obesity as multiply determined (Rodin, 1982). While researchers agree that a single explanation does not exist, there appears to be common factors prevalent among obese individuals. Fat cell theory, set point theory, dietary factors, and repeated dieting are believed to impact both initial obesity and one's susceptibility to regain lost weight (Craighead, 1985; Drewnowski & Greenwood, 1983). While not exhaustive, these physiological theories are commonly cited in the literature.

#### **Fat Cell Theory**

An abundance of research is accumulating to suggest that there are important genetic contributions to obesity. According to fat cell theory, adults with juvenile-onset obesity typically have more than the normal number of fat cells, whereas those with later onset typically have a

normal number of larger fat cells (Craighead, 1985). Fat-cell number, however, does not decrease with weight loss, only fat-cell size. Bjorntorp (1975) presents evidence that weight loss typically stops once fat-cell size reaches normal, regardless of whether the person is still "overweight." Everyone has some fat cells, but people who are obese either have unusually large cells or more cells than do people of normal weight. Excess numbers of fat cells can be acquired in adulthood as well as childhood, but are more likely to be increased in number if excess weight is gained before the age of 12 (Bjorntorp, 1975).

In addition, fat cells may affect weight in another way. It takes fewer calories to sustain fat tissue than lean body tissue. Thus, a person with a higher percentage of body fat will maintain his or her weight on fewer calories than a person with more muscle tissue (Katch & McArdle, 1977).

### **Set Point Theory**

Set point theory suggest that each person has an ideal biological weight, which may be higher than cultural weight norms, and that the body will utilize physiological mechanisms, such as appetite, to defend this weight against efforts to modify it (Craighead, 1985). Obviously, there is a range within which one's weight can be altered intentionally, in either direction. As one would approach

either extreme of this range, however, greater conscious effort would be needed to compensate for biological counter responses. At present, there is no clear way to determine what this range might be for a given individual (Craighead, 1985).

Fat cell theory and set point theory may be related in that size and number of fat cells may act as mechanisms to determine a weight set point (Brownell, 1984). Both theories are controversial and lack clear empirical support, although research efforts are continuing (Brownell, 1984; Brownell & Foreyt, 1986).

### **Dietary Factors**

Evidence from animal research strongly suggests that the content of a diet can influence the biological regulatory system. Rats given a "supermarket" diet, which is high in sweetness and fat and a variety of food choices, will gain large amounts of weight quickly, even though they had previously remained at normal weight when given free access to laboratory chow (Sclafoni & Springer, 1976). The high-fat content appears to be the most critical aspect of the diet. Drewnowski and Greenwood's (1983) research on obese and normal taste preferences indicates that the obese person prefers higher fat content but not higher sweetness, and this preference does not change even if the obese person



successfully loses weight. Although it has not been clearly demonstrated in human research, the inference is that a low-fat, low-variety diet may in itself influence physiological processes and perhaps lower a person's current "set point" (Bennett & Gurin, 1982).

Consistent with the research on the type of food an individual consumes such as a high-fat diet, the most commonly held theory of obesity is that it is caused by chronic positive energy balance, namely, the individual consumes more energy (calories) than is expended (Williamson, 1990). Evidence does exist, however, that obese individuals do not eat more and often eat less than lean persons (Spitzer & Rodin, 1981). Diet does make a difference and at present much attention is being focused on compulsive eating, or binge eating, because it has been found to lead to obesity and weight regain (Williamson, 1990).

### **Repeat Dieting**

Weight loss followed by regaining weight may be more hazardous than static obesity; this may be due to the fact that the newly-regained weight will have a higher percentage of fat tissue than the weight that has been lost (Brownell, 1984). As a result, weight cycling may also affect set point regulatory mechanisms, which increase difficulty losing weight the next time the individual diets, and this

experience of failure may lead to the belief that the weight problem is not changeable (Jeffery et al., 1984).

A recent study found that repeated cycles of weight loss and regain in animals were associated with increased metabolic efficiency (Brownell, Greenwood, Shrager, & Stellar, 1986). As a result, the animals lost weight at half the rate when they were put on a diet a second time even though intake was the same on both diets. Dieting and relapse made subsequent dieting more difficult.

Numerous studies point to the fact that persons who have dieted many times have a poor prognosis (Jeffery et al., 1984), although Dubbert and Wilson (1984) did not find this result. A relapse could be a failure that strengthens the person's view that the problem is beyond his or her best efforts. However, relapse may have positive consequences if the experience somehow prepares the individual for later success. In any event, if weight cycling or relapse occur only negative physiological problems manifest making one's next attempt at weight loss more difficult.

Weight regain results both from physiological and psychological causes. Physiological factors such as decreased metabolic rate make it easier to regain weight (Brownell, 1984). Weight regain also exist because dieters return to inappropriate eating and poor exercise habits (Blackburn et al., 1989).

### THE RELAPSE PHENOMENON

In the treatment of obesity, controlled food use, rather than abstinence, is the goal (Sternberg, 1985). Controlled eating is difficult to define because there is no clear-cut demarcation between controlled and uncontrolled eating. Unlike alcohol and cigarettes where abstinence is defined as not using the substance at all, dieters must set their own rules to define what constitutes overeating.

Relapse may be defined as weight loss that is subsequently regained (Sternberg, 1985). Medically defined, relapse is regaining at least 20% of lost weight (Kayman, Bruvold, & Stern, 1990; Wing & Jeffery, 1978). The process of relapse can begin by the dieter's response to a lapse, which can be defined as a single event, a reemergence of a previous habit (Brownell et al., 1986). It's the individual's response to the lapse that may determine whether relapse is likely to begin. This varies from person to person and may be best defined by perceived loss of control. The majority of dieters who lose weight begin the relapse process very soon after treatment, much like those who achieve abstinence from tobacco, heroin, and alcohol (Rosenthal & Marx, 1981). The process of relapse and the relapse rates after behavioral treatments of obesity parallel those for addictive behaviors (Grilo, Shiffman, & Wing, 1989). Many dieters--once ashamed of being compared to

alcoholics and drug addicts--are beginning to accept their own food addiction after numerous attempts to prevent their own relapse.

Regardless of success criteria, relapses among obese individuals appear to be universal (Chiauzzi, 1991). Unlike recovery from other addictions like alcohol, the dieter attempting to maintain lost weight must accept the fact that lapses will occur. In one study, 100% of dieters had at least one slip, while two-thirds gained at least five pounds within the first 60 days after treatment (Rosenthal & Marx, 1981). Overall, because of overeating at least two-thirds of those who lose weight gain it all back within a few years, while only 2% are still maintaining their original goals after seven years (Milkman & Sunderwirth, 1987). Recovering from obesity requires realistic goals such as being able to handle lapses as opposed to believing that lapses will never occur (Brownell & Foreyt, 1986).

The frequency of relapse represents a major clinical problem in the maintenance of weight loss and has increasingly been the object of investigation (Williamson, 1990). More information about dieters' thoughts, feelings, and actions would provide clues as to why early recovery, up to one year posttreatment, represents the beginning of relapse for most dieters.

### FOOD AS AN ADDICTION

There is increasing evidence that eating disorders, namely compulsive overeating, and substance abuse are related (Williamson, 1990). The pattern of overeating is similar across addictions and the behavior continues despite its negative impact on the physical, psychological, and social function of the individual (Donovan, 1988). Overeating is often kept secret. People with food addictions, whether or not they are obese, report strong preoccupations with food and a distortion in lifestyle to support their eating patterns. Many become privately disturbed about their eating and try, unsuccessfully, to change the destructive pattern. They often relapse when they begin to gain weight or experience food cravings. A large percentage of overeaters, similar to those with other addictions, engage in obsessive-compulsive behavior, which is supported by "all-or-nothing" and perfectionistic thinking (Williamson, 1990).

Donovan (1988) writes that the compulsive involvement in a behavior pattern such as overeating represents the addictive process. It is this process, along with its multidimensional determinants, that is comparable across different objects of addiction. For treatment purposes, some professionals believe that dieters should consider their eating disorder within the context of a 12-step program,

i.e., identifying themselves with a lifelong eating disorder, (Yeary & Heck, 1989). Overeaters Anonymous has endorsed these steps, but most weight-loss programs have continued to apply behavior modification along with other strategies that seem to generically treat obesity on a short-term basis.

#### **WEIGHT-LOSS RELAPSE AND OTHER ADDICTIONS**

The relapse of weight loss is increasingly being compared with that of other addictions. Individuals who have problems with excessive behaviors such as eating, drinking, drug use, gambling, smoking, and sexuality present very similar descriptions of phenomenology of their disorders (Brownell et al., 1986; Cummings, Gordon, & Marlatt, 1980; Orford, 1985). Within the past decade researchers (e.g., Brownell et al., 1986; Donovan & Marlatt, 1988) have defined addiction as a complex, progressive behavior pattern having biological, psychological, sociological, and behavioral components. What sets this behavior pattern apart from others is the individual's overwhelmingly pathological involvement in or attachment to it, subjective compulsion to continue it, and reduced ability to exert personal control over it. The behavior pattern continues despite its negative impact on the physical, psychological, and social function of the individual (Donovan, 1988).

Compelling arguments are marshaled for both commonalities and differences in the addictive disorders. Food abuse, for example, does not fit neatly with concepts of physical dependency, withdrawal, and tolerance. Nicotine dependence may be the central issue for a smoker, excessive fat cells for a dieter, and disordered alcohol metabolism for an alcoholic, but there may be common social or psychological provocations for relapse, emotional reactions to lapses, and problems in reestablishing control (Brownell et al., 1986). In the treatment of obesity and food addictions, relapse prevention techniques similar to those used in the treatment of alcoholism are being recommended (Brownell & Wadden, 1986; Craighead, 1985). This promotes the idea that relapses of old eating habits will occur, but these are not failures and do not need to lead to binges.

One of the major commonalities among the addictions is the astonishing relapse rates. Relapse rates for drug, alcohol, tobacco, and obesity treatment programs are reported to be in the range of 50-95% (Marlatt & Gordon, 1985).

#### **RISK FACTORS ASSOCIATED WITH WEIGHT-LOSS RELAPSE**

Countless research articles have focused on predisposing factors leading to weight-loss relapse. While most researchers (e.g., Brownell et al., 1986; Foreyt, 1987;

Kayman et al, 1990) agree that there is no single cause for relapse, there appears to be common factors prevalent in most cases of weight-loss relapse. While most dieters are aware of popular weight-loss maintenance strategies such as exercise and low-fat diet, few of the adults in post weight loss can actually put them into long-term practice. Post weight loss brings with it challenges and certain situations that may or may not be deemed "high risk" for an individual client. The unique combination of external, interpersonal, environmental, and intrapersonal risk factors create for the adult in post weight loss potential threat for relapse. Table 1 represents the external, interpersonal, environmental, and intrapersonal risk factors associated with weight-loss relapse.

### **EXTERNAL RISK FACTORS**

#### **Cultural Pressure Toward Thinness**

Obesity is a major concern in this country, particularly for women, who are unhappy with their body image and more likely to perceive themselves as overweight than men (Brownell, 1984). At this particular time, American society advocates an unrealistically thin "ideal" female body image--one that is almost adolescent in appearance. As a result, there are strong pressures on females to achieve a



Table 1

External, Interpersonal, Environmental, and Intrapersonal Risk Factors Associated with Weight-loss Relapse

Variable	Citation	Year
<b>EXTERNAL RISK FACTORS</b>		
Cultural pressure toward thinness	Nash	1987
	Cash et al.	1986
	Allon	1982
Weight cycling	Brownell et al.	1986
	Brownell	1984
	Jeffery et al.	1984
	Rodin	1990
Physiological differences	Bennett & Gurin	1982
	Bray	1986
	Brownell	1982
	Simopoulos & Van Itallie	1984
	Rodin	1982
<b>Demographic</b>		
Social class	Rand & Kuldau	1990
	Sobal & Stunkard	1989
Race	Rand & Kuldau	1990
	Kumanyika	1987
Gender	Rand & Kulka	1990
	Van Itallie	1985
	Jeffery et al.	1984
	Forster et al.	1988

Table 1 (Continued)

Variable	Citation	Year
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**INTERPERSONAL RISK FACTORS**

Lack of posttreatment professional contact	Perri, Shapiro et al.	1984
	Kayman et al.	1990
	Perri, McAdoo et al.	1984
	Brownell et al.	1986
Lack of partner support	Brownell et al.	1978
	Brownell & Stunkard	1981
	Dubbert & Wilson	1984
	Murphy et al.	1982
	Kayman et al.	1990
Lack of peer support	Cohen & Syme	1985
	Wilson	1985
	Kayman et al.	1990
Lack of family support	Kayman et al.	1990
	Wadden & Stunkard	1985
Interpersonal conflict	Cummings et al.	1980
	Nash	1987

Variable	Citation	Year
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**ENVIRONMENTAL RISK FACTORS**

Inactivity	Perri et al.	1986
	Epstein et al.	1985
	Kayman et al.	1990
	Foreyt	1987
	Graham et al.	1983

Table 1 (Continued)

Unexpected life events	Kayman et al.	1990
	Janis	1983
High-fat diet	Drewnowski	1983
	Krieshok & Karpowitz	1988
	Kayman et al.	1990
	Leon & Chamberlain	1973
	Rodin et al.	1990
Nighttime eating	Rosenthal & Marx	1981
Lack of record keeping	Sternberg	1985
Compulsive overeating	Williamson et al.	1989
	Williamson	1990
	Marcus & Wing	1987
	Striegel et al.	1986
	Goodrick & Foreyt	1991
	Schlundt et al.	1989
Variable	Citation	Year

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#### INTRAPERSONAL RISK FACTORS

##### Thoughts

Dichotomous thinking	Chiauzzi	1991
	Brownell & Wadden	1986
	Roden	1983
Inadequate motivation	Brownell et al.	1986
Ignoring weight gain	Brownell	1984
	Wilson	1985

Table 1 (Continued)

Decreased self-efficacy	Perri, McAdoo et al.	1984
	Brownell et al.	1986
	Perri, Shapiro et al.	1984
	Bandura	1977
Inability to deal with success	Brownell et al.	1986
	Colvin & Olson	1983
Perceiving obesity as a short-term problem	Brownell & Jeffery	1987
<b>Feelings</b>		
Negative emotional states	Rosenthal & Marx	1981
	Grilo et al.	1989
	Kayman et al.	1990
	Brownell et al.	1986
	Jeffery et al.	1988
	Sternberg	1985
Positive emotional states	Sternberg	1985
	Grilo et al.	1989
<b>Actions</b>		
Poor coping skills	Kayman et al.	1990
	Marlatt & Gordon	1985
	Kayman et al.	1990
Testing oneself	Foreyt	1987
Impulsivity	Ryden & Johnson	1989

socially-accepted level of thinness (Nash, 1987). Men, too, although they suffer less pressure from society's values about what is an appropriate body weight for males, can get caught in the frenzy to reduce weight and keep it off (Nash, 1987). Because of cultural pressures to be thin, 55% of women and 41% of men are dissatisfied with their weight, and at any given time 38% of women and 20% of men say they are on a diet (Cash, Winstead, & Janda, 1986).

Successful dieters never forget the prejudice and discrimination they experienced when they were obese (Allon, 1982). Many Americans say that obesity in others does not bother them, but studies indicate obese people are rated more negatively than nonobese people on characteristics such as physical attractiveness, intelligence, success, and desirability as an employee (Larkin & Pines, 1982). When asked to rank order various categories of people as potential marital partners, college students report preferring to marry an embezzler, cocaine user, shoplifter, and blind person before they would marry an obese person (Venes, Krupka, & Gerard, 1982). Adults in post weight loss are faced with the challenge of maintaining weight not only for themselves, but also for a society that will judge them physically unattractive and unmotivated (Allon, 1982). Ironically, this pressure to maintain lost weight places a

significant burden on the individual adding to the stress of everyday life (Larkins & Pines, 1982).

### **Weight Cycling**

A number of studies (e.g., Brownell, Greenwood, Stellar, & Sharager, 1986; Rodin, Radke-Sharpe, Rebuffe-Scrive, & Greenwood, 1990) have speculated that humans who diet and regain repeatedly have an increased metabolic efficiency that inhibits weight loss and promotes regain. These may help to explain why many obese individuals who have dieted unsuccessfully for years have great difficulty even on severely restricted, calorie-controlled diets (Foreyt, 1987). It has been found that even motivated dieters who have a history of weight loss followed by regain are highly prone to relapse (Jeffery et al., 1984).

Rodin et al. (1990) report that repeated gain and loss of weight or body fat stores might induce changes in fat metabolism, which may lead to an increased accumulation of fat in the abdominal regions, as has been demonstrated in some animal studies. The adult in post weight loss, who also has a history of weight cycling, is at high risk for cardiovascular disease if relapse occurs because of abdominal fat distribution.

### Physiological Differences

Influential physiological factors may be involved in producing weight regain. Food does not seem addictive in the manner of cigarettes and alcohol, yet the physical pressures to regain lost weight may be extremely powerful (Bennett & Gurin, 1982; Brownell, 1982). Such pressures could involve the lipid repletion of fat cells and alterations of several factors including body composition, metabolic rate, thermogenic response to food, and enzyme activity, each of which may be related to a body weight "set point" in which the organism defends a biological ideal against fluctuations, including weight loss (Bray, 1986; Brownell, 1982).

Even though epidemiologic studies with humans show positive effects of weight loss on blood pressure, cholesterol, glucose tolerance, and mental health (Simopolous & Van Itallie, 1984), cravings and urges to overeat after weight loss overpower the adult's ability to abstain. Rodin (1982) states that a dieter's food cravings are "true" physical cravings after weight loss. Just the sight and smell of foods can elevate the insulin level in obese and formerly obese people more so than in nonobese people.

There are a number of physical factors that puts the adult in post weight loss at risk for weight regain. Weight

cycling, the body's set point, and cravings are just some of the factors that promote weight regain in the adult regardless of motivation to maintain lost weight.

### **Social Class**

Prevalence of obesity and weight regain vary according to social class. There is a consistent inverse relationship between prevalence of obesity and social class among adult women: More upper-class women are thin and more lower-class women are heavy. In a number of studies, men of lower SES have shown a prevalence of obesity of about 30%, compared to that of about 15% among upper-class men (Brownell & Foreyt, 1986). Preference for a normal body shape to an obese body shape, however, appears ubiquitous, across social class, race, and gender (Sobal & Stunkard, 1989).

Rand and Kuldau (1990) found that obesity increases as income decreases. Evidence does not support the notion that lower-class people who are obese are unconcerned with their weight. Most people seem concerned about weight; however, thinness is much more emphasized in the middle and upper classes. Differing cultural standards of acceptable weight among the social classes seem to help explain why upper-class people diet after a weight gain of five pounds, whereas lower-class adults diet after larger amounts of weight gain (Rand & Kuldau, 1990).



The relationship between social factors and obesity is a two-way street: Just as SES influences obesity (strongly), so does obesity influence SES (less strongly). Thus obesity is more prevalent among downwardly socially mobile persons than among those who remain in the social class of their parents, and far more prevalent than among those who are upwardly socially mobile (Brownell & Foreyt, 1986). Both obesity and weight regain seem to be tied closely to one's SES placing the person at greater risk as income decreases.

### **Race**

Prevalence of obesity does seem to vary according to one's race. Data from the National Health and Nutrition Examination Survey (NHANES-II) indicated that 5.5% of black men compared to 12.7 of white men in their early twenties were overweight, with the highest prevalence of overweight (61.2%) occurring in 45- to 54-year-old black women (Van Itallie, 1985). Prevalence of overweight among black women at all ages was greater than white women, and overweight was more prevalent among poor than middle-class women (Kumanyika, 1987; Van Itallie, 1985).

Using a sample of over 2,000 Americans, Rand and Kuldau (1990) found that almost half of the black women (46%) were obese, and their average overweight exceeded that of all

other groups. Black women continued to be more obese than white women when effects of SES were controlled. The next highest rate (41%) was found among black men. A comparable percentage of white men (16.3) and women (18.2) were moderately obese, but the average overweight of white men was significantly greater than that of white women.

### **Gender**

Not only are women more concerned about their body size, more of them are obese compared to men (Rand & Kulkau, 1990). Regardless of level of obesity, more women than men diet and more want to be thinner. Jeffery et al. (1984) found that 64% of women but only 23% of men who had never been overweight reported a history of dieting to lose weight. Among the obese population, more women than men seem to be clinically obese (Van Itallie, 1985). Obesity affects up to 40% of adults (Forster, Jeffery, Schmid, & Kramer, 1988), and it is estimated that one-third of women and one-fourth of men are obese (Brownell, 1984).

## INTERPERSONAL RISK FACTORS

### Lack of Posttreatment Professional Contact

Convincing a large number of clients to follow up after formal treatment is a major problem among all addictions treatment (Brownell et al., 1986). Traditional treatment approaches have used "booster" sessions. As the name implies, clients are to be "immunized" against pressures to relapse with the initial treatment, and periodic boosters are needed to maintain the protection (Brownell et al., 1986). Many programs who use this type of maintenance treatment report that a large number of clients fail to attend these sessions.

Perri et al. (1986) have criticized booster sessions because they may not provide clients with sufficient support and advice to sustain behavioral changes during the months following treatment. It has been found that many clients after the termination of treatment gradually abandon behavioral techniques, experience relapse, and regain much of the weight they lost during treatment (Perri et al., 1986). The major problem that still exists is that most clients fail to take advantage of any posttreatment sessions regardless of their content. Treatment studies suggest that maintenance improves as contacts with professionals increase during follow-up (Perri et al., 1986).

Knowing that booster sessions typically do not meet clients' needs, Perri, Shapiro et al. (1984) have used behavior therapy plus relapse prevention training and posttreatment contact with moderately obese adults. It was found that at the 12-month follow-up session, a significant number of clients had maintained their weight. High frequency of posttreatment contacts with counselors seems to increase a client's ability to maintain lost weight. In another study (Perri et al., 1986), a therapist-contact group showed significantly better weight loss and maintenance progress than both the peer support and control conditions.

It has been consistently found that dieters who lose weight and keep it off do it on their own (Brownell et al., 1986; Kayman et al., 1990; Ockene, 1984). But for those clients who enter a formal weight-loss treatment program, periodic follow-up contacts seem to be necessary for maintenance (Perri et al., 1986). Kayman et al. (1990) found that most dieters lose weight on their own and do not use any professional help for maintenance. In fact, the maintainers in this study reported that they did not want help, that help from others for their weight-control efforts was not an issue for them, and that weight control and food intake were their own concerns.

For those clients who enter weight-loss programs, follow-up contact with a program or with some professional is vital to weight-loss maintenance (Perri, McAdoo et al., 1984). Clients profit from monitoring that extends beyond initial treatment (Brownell et al., 1986), and maintenance does seem to improve as contacts with professionals increase during follow-up (Perri, Shapiro et al., 1984).

### **Lack of Partner Support**

The involvement of both marital partners in a weight-loss program can have beneficial effects on long-term weight loss and maintenance (Brownell, Heckerman, Westlake, Hayes, & Monti, 1978; Murphy, Williamson, Buxton, Moody, Absher, & Warner, 1982). The most important component of spouse involvement is attendance of the spouse or partner at the treatment sessions. After treatment, partner involvement is a key factor in promoting weight-loss maintenance (Murphy et al., 1982).

Kayman et al. (1990) found that more maintainers sought support or help in dealing with their problems from family, friends, and professionals than did relapsers. More relapsers reported that they had few people available for support or help with their problems than did maintainers.

Although Dubbert and Wilson (1984) did not find that including clients' partners in treatment enhanced weight

loss and maintenance, many researchers (e.g., Brownell & Stunkard, 1981; Murphy et al., 1982) have concluded that involving a "loved one" in the client's program enhances both weight loss and weight-loss maintenance. Lack of partner support, then, may lessen a client's chances of successfully keeping off weight.

### **Lack of Peer Support**

Support from friends is one of the few variables that is associated with long-term success at weight reduction, and in many cases, maintenance (Wilson, 1985). Perceived general support seems to enhance one's ability to desire the need and want to maintain weight.

Kayman et al. (1990) found that social support or the perception that friends are available to discuss troubles and offer help when needed seemed significantly greater for maintainers than for relapsers. A friend's social support plays a role in the maintenance of new health behaviors (Cohen & Syme, 1985). Peer support does indeed seem to enhance clients' motivation and desire to lose weight, but the exact mechanisms and details for the role social support plays in maintenance of long-term weight loss are yet to be defined.

### **Lack of Family Support**

Typically, the main family member that is of utmost importance to the married weight-loss maintainer is the spouse (Kayman et al., 1990). If, however, the client does not have a spouse or partner, other close family members become important as a means of primary support (Brownell et al., 1986). Relapsers have reported that they have fewer family members available to them for support and help in dealing with their problems (Kayman et al., 1990). Obesity and weight regain may contribute to a sense of isolation because of the failure of the individual's family or peers to understand the frustration of being obese and constantly struggling with weight-related issues (Wadden & Stunkard, 1985). Uncooperative family members may sabotage the progress of the client trying to lose weight or maintain lost weight.

### **Interpersonal Conflict**

The converse of social support is interpersonal conflict, and studies have shown that this conflict is significantly involved in relapse (Cummings, Gordon, & Marlatt, 1980). Stressful interpersonal relationships can hinder weight-loss maintenance efforts. Poor communication skills, power struggles, or the inability or unwillingness to manage conflict effectively can lead to emotions that

trigger eating for many people (Nash, 1987). Weight-loss relapse is much more likely if social support or positive interpersonal relationships are absent in the client's life.

In the study by Cummings et al. (1980), nearly half (48%) of the relapse episodes occurred in association with interpersonal determinants, with one-third of these coming from conflict. It appears, therefore, that stressful interpersonal relationships can hinder maintenance and that supportive relationships can help (Brownell et al., 1986).

## **ENVIRONMENTAL RISK FACTORS**

### **Inactivity**

Exercise is emerging as one of the most important components of treatment in the area of weight control. It is one of the few factors correlated with long-term success (Graham, Taylor, Hovell, & Siegel, 1983). Exercise plays a significant role both in increasing weight losses during treatment (Perri, McAdoo et al., 1986) and in the maintenance of lost weight (Epstein, Wing, Koeske, & Valoski, 1985; Foreyt, 1987). Eighty-five percent of men and 78% of women who participated in an obesity treatment program reported that increased exercise was an important factor in their weight-loss maintenance (Colvin & Olson, 1983). It has been consistently found that clients who both



adhered to a program and engaged in physical activity are more successful with overall loss and posttreatment maintenance (Graham et al., 1983).

Kayman et al. (1990) found that most maintainers exercised regularly, whereas few relapsers did so. Subjects in their study were more likely to add exercise behaviors that are conducive to their current lifestyles, such as increasing their walking rather than adding a vigorous aerobic training program to their daily lives. Relapse seems to increase once clients abandon physical activity from their daily lives (Brownell et al., 1986), whereas maintenance seems to increase if exercise continues to play an important role during posttreatment (Foreyt, 1987).

### **Unexpected Life Events**

All dieters seem to report unexpected problems in their lives. More relapsers, however, report experiencing problems related to their obesity and their health than do maintainers (Kayman et al., 1990). Social support is important to post weight-loss clients (Janis, 1983), but relapsers, whether or not they have good support, seem to complain more often than maintainers when it comes to trying to manage everyday activities in addition to weight-loss maintenance (Kayman et al., 1990). Whereas all dieters report unexpected and unpredictable stressful life events,

maintainers believe themselves capable of handling their problems and use problem-solving skills to cope with their difficulties. In contrast, relapsers do not deal with their problems directly and many times use food for comfort (Kayman et al., 1990).

### **High-fat Diet**

A major problem among obese clients before and after they lose weight is the type of food some of them choose to eat. The loss-gain cycle is not only associated with a pattern of more abdominally distributed fat (Rodin et al., 1990), but dieters tend to prefer high-fat foods once the diet is completed. Drewnowski's (1983) finding that obese people prefer foods that are calorically dense and highly flavored supports the idea that the type of food consumed is related to excess fat accumulation.

Researchers (e.g., Kayman et al., 1990; Leon & Chamberlain, 1973) have found that successful maintainers report being less likely to eat calorically-dense snack food, eating fewer calories while watching television, and engaging in fewer activities outside the home than regainers. Many dieters assume that their desire for high-fat food will be alleviated once weight is lost, but after substantial weight loss, clients display an elevated preference for foods that are high in both fat and sugar

(Drewnowski & Greenwood, 1983). Women who have a history of relapse ate significantly more fatty snacks, but not more salty or savory snacks than women who either maintained weight after a substantial weight loss, or who had no history of weight loss and regain (Kayman et al., 1990). Consuming high-fat foods continues to be a main problem for some relapsers who fail to consider food type, meal size, and food variety (Krieshok & Karpowitz, 1988).

### **Nighttime Eating**

Many dieters and clients in post weight loss find that nighttime eating tempts them to overeat or lapse. Rosenthal and Marx (1981) found that individuals who relapsed tended to experience their initial slip in the evening after 5 p.m. For those who did not relapse, only 33% of initial slips occurred in the evening, with the majority (56%) occurring in the afternoon, between noon and 5 p.m. It may be that when a lapse occurred during the evening, fewer external demands such as a job were available to distract the individual from continued eating (Sternberg, 1985).

### **Lack of Record Keeping**

Keeping track of the number of calories consumed on a daily basis has been suggested as a weight-loss maintenance strategy (Brownell & Foreyt, 1986). Sternberg (1985) found

that among successful dieters, 89% reported relying upon record keeping and calorie counting as primary means of controlling weight regain posttreatment. Only 53% of clients who regained five pounds or more reported utilizing this method. This finding suggests that feedback stemming from record keeping and calorie counting may be very useful for weight-loss maintenance, or that clients who adhere compulsively to a target weight-control behavior may be more successful than those who do not (Sternberg, 1985).

### **Compulsive Overeating**

The obvious reason for weight regain after weight loss treatment is that clients return to inappropriate eating and exercise habits (Goodrick & Foreyt, 1991). Actually, the role that overeating plays in causing and maintaining obesity is open to controversy (Nash, 1987). Although it may seem that obese people must eat more than normal weight people, researchers have had a great deal of difficulty proving this. Utilizing naturalistic settings, five field studies found some evidence that obese individuals eat more than nonobese persons, but three other studies found no differences (Striegel-Moore & Rodin, 1986).

The majority (about 70%) of compulsive overeaters are obese (Williamson, 1990). It is difficult to accurately estimate, but a large portion of the obese population has

significant problems with compulsive overeating or inappropriate eating and the problems of these compulsive overeaters may be different from a simple energy imbalance and resulting obesity (Schlundt, Sbrocco, & Bell, 1989; Williamson, 1990). From one-third to one-half of obese individuals seeking treatment for obesity are likely to have a significant problem with binge eating (Kolotkin, Revis, Kirkley, & Janick, 1987). Indeed, a portion of the obese population compulsively overeats which results in secondary psychopathology such as depression, anxiety, and obsessive compulsive habits (Marcus & Wing, 1987; Williamson, Prather, Goreczny, Davis, & McKenzie, 1989).

Those clients with a food dependence may be caught in a cycle of dieting, withdrawal, overeating, and a return to dieting. Dieting has been shown to increase cravings for highly palatable foods (Kayman et al., 1990) which may lead to overeating or binge eating (Williamson, 1990). This excessive eating usually involves foods high in both carbohydrates and fat. Weight-loss relapsers tend to give into the cravings that seem to plague all clients in post weight loss.

## INTRAPERSONAL RISK FACTORS

### THOUGHTS

#### Dichotomous Thinking

Research in obesity has consistently shown that dieters who fail engage in dichotomous thinking (everything is either good/bad, on the diet/off the diet). Dieters often relapse when they continue to engage in obsessive-compulsive behavior, which is supported by "all-or-nothing" and perfectionistic thinking (Chiauzzi, 1991). Rodin (1983) states, "You need to change the way you think about food, the way you think about dieting, and the way you think about fatness. Failure to maintain weight loss is often due to unhelpful thought patterns, and the task of any successful treatment is to restructure those faulty thoughts into ones that are more useful" (p. 137).

Clients who are to be expected to maintain lost weight must completely change the way they think (Brownell & Wadden, 1986). No longer can a lapse be viewed as a complete failure. Relapsers continue to view things in absolute terms which leads to feelings of inadequacy when unrealistic standards are not met. One dietary indiscretion may prompt an all-or-none thinker to think "I've blown it; I'm a total failure" (Roden, 1983). This type of thinking tends to make the dieter go "off the diet" or the client in post weight loss "throw in the towel." With some clients in post weight

loss, O'Conner and Dowrick (1987) found that occurrences of weight- and food-focused thoughts were self-defeating; the outcome of these thoughts was to engage in inappropriate eating.

### **Inadequate Motivation**

It would seem that all persons who set out to change are motivated, particularly those who enter professional programs. There are degrees of motivation, however, and it is common for a client to begin the change process in a burst of enthusiasm without appreciation for the long-term effort involved. In other cases, the motivation may be more external than internal, when social pressure (e.g., cultural ideals of thinness) forces a symbolic if not real attempt to change (Brownell et al., 1986). The client in post weight loss is no different. Motivation must be evaluated periodically and the client's real incentive to keep weight off must continue to be reinforcing.

A client's motivation to maintain lost weight may have something to do with the number of relapses (Brownell et al., 1986). Repeat dieters may have a better chance of maintaining lost weight than first-time dieters, but no evidence is available to support this assumption. A relapse could be a failure that strengthens the client's view that the problem is beyond his or her best efforts. Relapse may

have positive consequences if the experience somehow prepares the client for later success. Inadequate motivation, then, may be the result of lack of experience with expecting and recovering from slips within the relapse process (Brownell et al., 1986).

### **Ignoring Weight Gain**

There is evidence in the area of weight control showing the utility of a cognitive "threshold" for weight regain in clients who have lost weight (Brownell, 1984; Wilson, 1985). Stuart and Guire (1978) examined successful maintainers in Weight Watchers and found them likely to have a personal regain threshold of three pounds or less before they instituted self-correcting actions.

Some individuals have the capacity to institute corrective action when their weight climbs above some self-imposed level. Many thin and formally-obese persons who do this are puzzled at overweight persons who do not seem to do the same. This may be an acquired or learned behavior which is influential in the ability to control weight (Brownell, 1984). It's difficult to say whether weight-loss maintainers are more aware of small weight regain than relapsers. It is fair to say, however, that maintainers use self-correcting methods (e.g., increasing exercise or eliminating high-fat



snacks) after their own cognitive "threshold" of weight regain (Brownell, 1984).

### **Decreased Self-efficacy**

A factor that may relate to long-term success is a client's coping ability associated with self-efficacy (Bandura, 1977). Self-efficacy is a person's belief that he or she can respond effectively to a situation by using available skills (Bandura, 1977). This concept is the root of the relapse prevention approach of Marlatt and Gordon (1985) and has been applied to obesity (Perri, McAdoo et al., 1984; Perri, Shapiro et al., 1984).

It is helpful for clients to learn more about what is happening before, during, and after lapses. Sternberg (1985) cites studies that encourage counselors to have clients examine feelings and cognitions during and particularly after lapses. Weight-loss maintainers typically are able to describe their own levels of self-efficacy with regard to recovering from lapses and preventing the relapse process from continuing (Brownell et al., 1986; Sternberg, 1985). In essence, weight-loss relapse may be inevitable if clients do not think they can actually succeed with long-term maintenance.

### **Inability to Deal with Success**

Maintaining lost weight brings with it a number of necessary lifestyle changes. Clients must not only be willing to adopt such changes but also be able to practice these changes on a daily basis. Researchers (e.g., Brownell et al., 1986; Covin & Olsen, 1983) have suggested that the behavior-change process includes commitment to change, initial change, maintenance of change, and most important, dealing with success, or living with the changes. This refers both to living with a smaller, thinner self, as well as accepting the changes as part of one's life rather than as unusual things to do as part of a temporary diet.

Weight-loss relapsers seem to have a problem adjusting to new body size, to new attitudes toward food, and to the fact that weight loss has been successful (Colvin & Olson, 1983). Weight-loss maintainers seem to carry an appreciation for their weigh-loss experience, and they continue to learn from their lapses.

### **Perceiving Obesity as a Short-term Problem**

Obesity is being compared with other addictions (Brownell et al., 1986); therefore, the treatment and maintenance is beginning to focus on long-term, ongoing management. Brownell and Jeffery (1987) have suggested that one strategy for dealing with this issue might be to

conceptualize the problem of obesity as a chronic rather than an acute condition. Counselors have traditionally treated weight management as a behavioral deficit to be corrected by the acquisition of self-control skills. The assumption is that once these skills have been learned they can be applied independently without further outside support (Brownell & Jeffery, 1987).

Successful weight-loss maintainers usually perceive obesity as a long-term problem that needs daily attention to prevent relapse. Obesity is a condition that needs to be seen as similar to chronic diseases like hypertension or diabetes than it is to learning deficits (Brownell & Jeffery, 1987).

## **FEELINGS**

### **Negative Emotional States**

Stress, depression, anxiety, and other emotional states are related to relapse. Individuals who have successfully lost weight and then find themselves under stress, or who become depressed, frustrated, anxious, or angry tend to show high level of weight regain (Jeffery, Dawson, & Wilson, 1988; Schlundt et al., 1989). Some individuals learn to use food to escape from tension or boredom or to assuage pain or depression (Jeffery et al., 1988). Rosenthal and Marx's (1981) findings with dieters suggest that lapses are most

likely to develop into relapses in stressful situations that pose threat to an individual's feeling of being in control, such as those situations characterized by negative emotions, interpersonal conflict, or social pressure.

Cummings, Gordon, and Marlatt (1980) compared alcoholics, smokers, heroin addicts, gamblers, and overeaters, and found remarkable consistency in major relapse episodes. Negative emotional states, interpersonal conflict, and social pressure accounted for about 75% of relapses.

Sternberg (1985) reports findings that point to a major type of high-risk situation for individuals trying to lose weight or maintain weight losses. Negative affective states occurring when the individual is alone, predominantly anxiety, boredom, and depression, were associated with one-third of the lapses and thus appear to be difficult for a large number of clients in post weight loss. Weight regain resulting from negative emotional states has been found in other studies (e.g., Grilo, Shiffman, & Wing, 1989; Kayman et al., 1990), and these data make it clear that negative emotional states greatly increase the chance of relapse (Brownell et al., 1986).

### **Positive Emotional States**

Positive emotional states involving other people, such as celebrations, parties, and social gatherings, are another type of high-risk situation for many individuals attempting to control their weight (Sternberg, 1985). In Sternberg's (1985) study, 32% of initial lapses occurred as the result of positive emotional states, in contrast to only 3% for the other addictive substances such as alcohol, cigarettes, and heroin. The higher percentages of lapses due to enhancement of positive states for dieters may be due to high levels of indirect social pressures. This difference may reflect the fact that although cigarette smoking and alcohol consumption are acceptable behaviors within our culture, food and eating activities permeate our culture to an extent unmatched by the other three substances.

Some clients in post weight loss gradually start using food again to celebrate positive emotions such as happiness and excitement (Grilo et al., 1989). Food once again becomes associated with "good times." Weight-loss maintenance is jeopardized when the dieter continues to use food not only as a comfort in negative situations but as a reward during positive times.

## **ACTIONS**

### **Poor Coping Skills**

A major problem among weight-loss relapsers is the inability to deal effectively with high-risk situations. If the dieter does not cope effectively and eats more food than is consistent with his or her weight-loss or maintenance goals, it may be due to one of two reasons. First, the dieter may not have the skills needed to cope adequately in the high-risk situation. Some dieters, for example, may not be aware that it is appropriate, when at a restaurant, to ask for food prepared in a specific way. Second, the dieter may have the skills but be prevented from using them by anxiety or fear. Regardless of the reason, failure to perform an adequate coping response is likely to lead to decreased self-efficacy, an increased sense of helplessness, and diminished belief in one's ability to cope (Sternberg, 1985).

Kayman et al. (1990) found that relapsers did not deal with their problems directly and reported that they used food to make themselves feel better when upset. These findings offer additional support for Marlatt and Gordon's (1985) theory of relapse, which suggests that an individual who has successfully made a behavior change will return to a former negative behavior pattern when a high-risk situation occurs for which coping skills are lacking.

### **Testing Oneself**

Some people who have lost weight tempt fate. They go back to overeating the foods that gave them the most trouble in the past just to see if they can eat them again without gaining weight. They want to see if they are now somehow different. Individuals who regularly test themselves by putting themselves in high-risk situations, who begin to neglect themselves, or who are not eternally vigilant, just to see if they can get away with it often regain weight (Foreyt, 1987). Weight-loss relapsers not only tend to place themselves in high-risk situations to test themselves, but they also abandon coping techniques they learned in treatment.

### **Impulsivity**

Responding to high-risk situations by overeating only to feel guilty afterwards is a common response across all addictions (Marlatt & Gordon, 1985). This impulsivity that is usually under control while the client is in treatment seems to resurface in post weight loss. Low impulse control is a problem for many clients who use food as a sedative to ward off or neutralize negative emotions (Ryden & Johnson, 1989).

### **WEIGHT-LOSS RELAPSE AND RISK FACTORS**

The risk for lapses and, consequently, relapse is determined by an interaction of individual, environmental, and physiological factors (Brownell et al., 1986). All of these factors must be considered in the complete change process. Mermelstein and Lichtenstein (1983) showed in their findings that lapses tended to be associated with social factors and that relapses were associated with individual factors such as negative emotional states and stressful events.

The external, interpersonal, environmental, and intrapersonal risk factors can individually or in combination represent "high risk" for an individual client. After treatment, the client, while following a set of rules governing eating and exercise behavior, experiences a sense of personal control (self-efficacy) over these behaviors. This perception of control continues until the dieter encounters a high-risk situation (Sternberg, 1985). The task of the client in post weight loss is to evaluate the extent to which external and internal risk factors pose threat to weight-loss relapse.

### **HIGH-RISK SITUATIONS**

Researchers (e.g., Brownell et al., 1986; Marlatt & Gordon, 1985) have begun to focus on situational antecedents



of relapse episodes and how people cope with temptations to relapse. Stimulus factors or antecedent cues heighten the risk of relapse crises. Dieters associate overeating with certain previous situations (e.g., lack of support from a spouse; anger at an employer; a favorite restaurant) and these situations may represent "high risk" for lapses. Marlatt (1985) states that regardless of the specific underlying mediating variables involved, it is the individual's own subjective definition of "risk" that characterizes a "high risk" situation. In this sense, a "high-risk" situation is defined broadly as any situation that poses threat to the individual's sense of control, thereby increasing the risk of potential relapse. Overeating periodically in post weight loss seems to be inevitable; therefore, it is the individual's response after the situation that determines whether the relapse process will occur.

Typically the pathway to relapse involves a predictable sequence of events. These include a precipitating environmental or social event, associated negative psychological states, a cycle of guilt and self-disparagement, and the eventual collapse of self-management behaviors (Brownell et al., 1986). This pattern of relapse to "high-risk" situations has been found not only in male alcoholics but also among cigarette smokers, heroin addicts,

individuals in weight-loss programs, and even gamblers (Marlatt & Gordon, 1985). Clients in post weight loss are faced with trying to handle "high-risk" situations differently to prevent lapses and relapse. When a lapse does occur, a client will either remain in control or interpret the "slip" as evidence confirming failure at self-control. If the negative reaction occurs, the individual may experience a sense of helplessness, continue to overeat, and not return to the habit change acquired in treatment.

#### **INTERVENTION STRATEGIES AND THE OBESE CLIENT**

A review of the literature suggests that obesity is a multidimensional problem and can best be addressed through efforts that focus on the individual rather than the disorder. Weight-loss programs have exclusively focused on ways to provide quicker weight losses for all clients as opposed to what may work for an individual client. The failure to take individual differences into account in developing intervention strategies has resulted in generic treatment and maintenance guidelines which have proven to be ineffective in addressing the long-term problems associated with obesity.

Brownell and Wadden (1986) write that the obese population has been viewed as a homogeneous group and, as a result, has been treated as such. Matching clients to

treatment does not exist, and treatment and maintenance interventions continue to be generic. Fortunately, research is emerging that the obese population is clearly a heterogeneous group. Therefore, it is being acknowledged that application of one specific strategy to change behavior is going to impact only a segment of the total population. It does not make therapeutic sense to prescribe the same treatment and maintenance approach for obese clients who differ in issues centered on interpersonal, environmental, and intrapersonal factors.

Because the relapse rates of obesity treatment are very poor (Foreyt, 1987), it can be concluded that we must start focusing on the individual to determine specific needs to not only maximize weight losses but weight-loss maintenance as well (Brownell & Foreyt, 1986). Researchers (e.g., Brownell & Wadden, 1986) suggest that client-treatment matching should become a research priority along with individualized weight-loss maintenance programs that cater to clients' diverse lifestyles.

#### **DESCRIPTION OF THE DESIGNATED WEIGHT-LOSS PROGRAM**

The clients in this study were purposely selected from one specific weight-loss program in Southwest Virginia. Three groups represented critical times in the weight-loss process (beginning of treatment, end of treatment, and one

year posttreatment). As a result, subjects in Groups 2 and 3 had completed treatment at the designated site, whereas subjects in Group 1 were just entering treatment. This was not an evaluative study of the program's effectiveness; the researcher was more interested in how dieters' TFA behavior after lapses in "high-risk" situations changes through and beyond weight-loss treatment.

The designated program is 26 weeks in length and uses a high-protein, low-carbohydrate diet. This VLCD includes three dieting stages: 12 weeks of a supplemented fast consisting of 800 calories/day; six weeks of refeeding which includes a combination of supplement and food (725-935 calories/day); and eight weeks of maintenance (approximately 1200 calories/day for women and 1500 calories/day for men). Maintenance diets are individually developed by a registered dietitian to meet clients' needs.

Weekly medical supervision, provided by a medical doctor, is required of all clients. Nutritional counseling during the refeeding and maintenance phases is provided by a registered dietitian.

Clients attend the program at least once a week to attend one-hour-long counseling sessions with a licensed professional counselor. Each client is required to read a manual that explains alternative behaviors to overeating. Individual counseling sessions focus on clients' problematic

areas related to food. At the end of treatment, clients are encouraged but not required to attend maintenance groups.

#### THE TFA MODEL

Most weight-loss programs offer but do not require some type of follow-up after treatment. Post weight loss is virtually ignored as a point of intervention. With the exception of booster sessions, which are a reiteration of earlier material, few studies have used the maintenance phase as the time for targeting lapses and the relapse process. Clients are "abandoned" after treatment and soon fail to maintain lost weight because they are not equipped with the different strategies needed to maintain lost weight. Processes and strategies may vary at different points during post weight loss, suggesting that intervention to prevent relapse would best address the problem at each client's point in the behavior-change process (Kayman et al., 1990). A weight-loss program's "one-size-fits-all" approach fails to consider the behavioral differences among clients as they exit treatment and enter their most difficult challenge--keeping off lost weight.

The effort to improve the maintenance of weight loss will be aided by increased understanding of the behavioral, cognitive, emotional, physiological, and social factors associated with regaining lost weight (Brownell & Wadden,

1986). We have little information about how these factors interact to cause weight regain. The totality of the individual, i.e., cognitive, affective, and behavioral components, must be considered with all clients across addictions (Grilo et al., 1989).

An eclectic approach is the current trend in the field of counseling (Smith, 1982) and some weight-loss programs have begun to focus on cognitive, emotional, and behavioral factors (Brownell & Jeffery, 1987). Knowledge of a client's thoughts, feelings, and actions during post weight loss remains a key factor to understanding how successful maintenance is achieved. Oftentimes, formally-obese individuals know intellectually what to do, but for rather complex reasons they are unable to abstain from compulsive overeating. Specific, individual TFA analyses during post weight loss should shed light on this perplexing issue.

It seems that a three-dimensional, cognitive-affective-behavioral schema (Hutchins, 1979) is most parsimonious and useful in guiding the selection of specific theories for conceptualization and intervention in each domain (Ward, 1983). Considering the totality of the person, the TFA Model emerges as one such approach to assessing and describing the thoughts, feelings, and actions of dieters at critical times during and beyond weight-loss treatment. Specific information about the individual allows less guesswork in

determining which strategy is appropriate for which client in which situations.

#### **THE USE OF TFA SYSTEMS™ DURING POST WEIGHT LOSS**

TFA Systems™ allows the opportunity for "high-risk" situations during post weight loss to be understood from a behavioral framework. Several studies (e.g., Bundy, 1991; Clow, 1989; Tieman, 1991) have used TFA Systems™ to identify behavioral characteristics of various populations. The TFA self-assessment has proven to provide researchers with an accurate account of one's thoughts, feelings, and actions, thus making it possible to suggest pertinent treatment recommendations.

TFA Systems™ (Hutchins & Vogler, 1988) emerged out of the work of Hutchins (1979), who explained behavior with the TFA Model as the interaction of one's thoughts, feelings, and actions. The relationship among the cognitive, affective, and psychomotor domains becomes an important element that requires accurate attention by both the counselor and the client in order to make adaptive change. TFA Systems™ allows for such attention as it focuses on the individual client and those behavior patterns relative to specific situations.

TFA Systems™ appears useful in examining the complexity behind weight-loss relapse. Better understanding

is needed in attempting to explain the individual reasons as to why the majority of clients relapse soon after they complete weight-loss treatment. The three behavior domains--thinking, feeling, acting--are discussed below with brief hypothetical examples of how weight-loss relapsers respond after lapsing in "high-risk" situations at one year posttreatment.

Thinking - The cognitive component of the TFA Model includes one's thoughts related to information about people, data, or things. An individual's thoughts may be positive, negative, or neutral (Hutchins & Vogler, 1988).

After lapsing in a "high-risk" situation, a client may think "I'm a complete failure. I've blown my diet plan." Many times the thoughts are dichotomous in nature and the client has not cognitively allowed for any "slips"; therefore, when the inevitable lapse does occur, the client perceives him\herself as a failure.

Feeling - The affective component of the TFA Model includes one's emotions and sensations about people, situations, and events. Positive, negative, or neutral feelings are possible for any individual (Hutchins & Vogler, 1988).

Feelings of guilt and shame may result from lapsing in a "high-risk" situation. The situation of overeating



triggers negative emotions and the client typically feels even worse than prior to the overeating event.

Acting - The psychomotor component of the TFA Model refers to what an individual does, or how one responds to a situation. Action implies movement and can be positive, negative, or neutral (Hutchins & Vogler, 1988).

Lapsing in a "high-risk" situation may lead to a continual chain of negative actions. The client in post weight loss may continue to engage in negative actions such as overeating even after a single lapse.

#### **INTERACTION OF TFA AND HIGH-RISK SITUATIONS**

TFA Systems™ was selected as a means to identify clients' specific thoughts, feelings, and actions in "high-risk" situations that resulted in a lapse. Being aware of clients' TFA behavior in these situations is critical because not recovering from lapses in "high-risk" situations seems to be a starting point at which clients may begin the relapse process (Brownell et al., 1986). Changes in clients' thoughts, feelings, and actions in and beyond treatment may provide important information in order to make recommendations for treatment and early weight-loss maintenance.

In order to accurately assess the thoughts, feelings, and actions of clients during post weight loss, TFA

Systems™ seems like an appropriate model to use. To fully understand the relapse process, clients' TFA behavior after lapsing in a "high-risk" situation needs attention. TFA Systems™, an eclectic, systematic approach, allows for individualized assessment in a specific situation, namely a client's self-defined "high-risk" situation.

#### SUMMARY

In this chapter, literature pertaining to weight-loss relapse was reviewed. It is concluded that all dieters are susceptible to weight-loss relapse due to the number of external, interpersonal, environmental, and intrapersonal risk factors. These factors singularly or in combination can pose "high risk" for any client who has completed weight-loss treatment and is attempting to maintain lost weight. Generic treatment approaches fail in two major areas: Dieters' individual differences as well as their specific situations that pose risk for weight-loss relapse are ignored.

The astonishing relapse rates despite dieters' repeated efforts to maintain lost weight are evidence that there is continued need for research during post weight loss. Research is nil in terms of the changes a dieter goes through from entering and exiting treatment to one year posttreatment. TFA Systems™, a method to assess behavior

both qualitatively and quantitatively relative to specific situations, may provide insight by comparing the changes that take place at three critical times in weight-loss treatment: beginning of treatment, end of treatment, and one year posttreatment. Only through being aware of clients' individual changes that evolve in and beyond treatment can we more accurately tackle the problems associated with weight-loss relapse.

## CHAPTER THREE

### METHODOLOGY

This study used TFA Systems™ to descriptively analyze how the behavior of dieters after lapses in "high-risk" situations changes during post weight loss. It examined behavior over one and one-half years. The general purpose of the study was to document the interaction of thoughts, feelings, and actions of dieters through and beyond weight-loss treatment. Dieters' behavior was compared by presenting thought, feeling, and action characteristics experienced at three critical times: beginning of treatment, end of treatment, and one year posttreatment.

Chapter Three includes a description of the research design, selection of the subjects, instrumentation, data collection, and data analysis.

### DESIGN

In-depth interviews were developed specifically for this study. The Risk For Relapse Questionnaire (Appendix A) was used as a major methodological instrument for data collection. The questionnaire generated data to test the null hypothesis that there was no difference in the TFA behavior of dieters at the beginning of treatment, end of treatment, and one year posttreatment. All interviews were recorded on audio tape which allowed the researcher to review the data collected for accuracy.

Included in the questionnaire was the TFA Clinical Interview, a method to assess specific thinking, feeling, and acting characteristics of subjects after they experienced lapses. The null hypothesis was tested by descriptively examining dieters' TFA behavior after they experienced a lapse in self-defined "high-risk" situations. Three separate yet comparable groups of dieters were interviewed at the three critical times.

## **SUBJECTS**

### **Selection Criteria**

The population selected for this study was male and female adult dieters who were beginning, completing, or had been out one year of the same weight-loss program in Southwest Virginia. The program was 26 weeks in duration which included 12 weeks of a supplemented fast, six weeks of refeeding, and eight weeks of stabilization. Clients in the program were medically monitored and participated in weekly one-hour-long behavior modification groups led by a licensed professional counselor. Instruction in nutrition by a registered dietitian was provided during the refeeding phase to all clients. A more-detailed description of this weight-loss program is provided in Chapter Two.

To be eligible for inclusion, all adult subjects had to be moderately obese, according to Metropolitan Life Insurance Company (1983) standards, upon entering treatment. In addition, all subjects had to be repeat dieters, i.e.,

they had dieted at least five times prior to entering the designated weight-loss program. As an incentive for participating in the study, each subject was promised a summary of the study's results.

### **Selection of Sample**

After determining that the client was moderately obese and a repeat dieter upon entering treatment, the researcher discussed with each client individually the study's content. Voluntary participation was solicited and clients were informed that they could withdraw from the study at any given time.

Three separate groups of dieters totaling 87 persons were chosen for the study to examine TFA behavior at the three critical times. The researcher assigned each client to one of three groups contingent upon whether they were at the beginning of treatment, end of treatment, or one year posttreatment.

### **Beginning of Treatment**

All clients who entered weight-loss treatment during July 1992, and who met the selection criteria, were eligible for inclusion in the study. The first 30 clients who entered treatment during July 1992 were selected by the researcher to participate.

### End of Treatment

All clients who completed weight-loss treatment during July 1992 were eligible for the second group of subjects. All of these clients lost at least 20% of their body weight during their participation in treatment.

### One-year Posttreatment

Clients who completed the weight-loss program during July 1991 were contacted via telephone and asked to participate in the study. All of these clients lost at least 20% of their body weight during their participation in the weight-loss program. From a list of 46 clients who had completed treatment one year ago, the first 30 clients agreeing to participate were selected for inclusion in the study.

## **INSTRUMENTATION**

### **Risk For Relapse Questionnaire**

In this descriptive study, subjects were interviewed at the designated site by use of a questionnaire. The Risk For Relapse Questionnaire was developed to reflect current research findings and variables associated with weight-loss relapse. The questionnaire was approved by the Human Subjects Review Committee at Virginia Polytechnic Institute and University. Each questionnaire was assigned a subject code number to assure client confidentiality and to help prevent researcher bias in the analysis of the responses.

The Risk For Relapse Questionnaire was used to gather information in the following categories related to weight-loss relapse and "high-risk" situations:

1. Demographic Information
2. Interpersonal Factors
3. Environmental Factors
4. Intrapersonal Factors
5. Significant observable information about affect, attitudes, and behavior of each subject.

#### **Section I: Demographic Information**

Time period of the interview (beginning of treatment, end of treatment, one year posttreatment), current weight, number or previous weight-loss attempts, and, where applicable, difference in weight since the end of treatment were obtained from each subject. Section I of the questionnaire consisted of the subjects' date of birth, gender, race, marital status, income, and annual income. This information allowed the researcher to conclude that the three groups of subjects were similar on the various demographic variables.

#### **Sections II, III, IV: Risk Factors**

Table 1, presented in Chapter Two, illustrated interpersonal, environmental, and intrapersonal risk factors associated with weight-loss relapse. These three areas categorized research findings suggesting that these



variables are likely to present potential obstacles for successful weight-loss maintenance. To assess subjects' susceptibility to relapse, questions were developed that asked subjects to plot their response on a scale from 1 (Not at All, Never, None) to 10 (Very, Always, A Lot). All of the questions directly reflected the variables listed under the interpersonal, environmental, and intrapersonal risk factors (see Chapter Two, Table 1).

### **Interpersonal Factors**

Amount of partner, peer, and family support, and the amount of professional contact outside of the current weight-loss program were recorded for each subject. Frequency of arguments with partner was also addressed from each subject.

### **Environmental Factors**

Variables were examined that related to amount of exercise, unexpected life events, diet, record keeping, and compulsive overeating. Through these scales, additional insight was gained into how environmental factors tend to influence lapses.

### **Intrapersonal Factors**

These variables were subdivided into thoughts, feelings, and actions. Thoughts such as dichotomous thinking and decreased self-efficacy, positive and negative feeling

states, and actions such as poor coping skills and testing oneself were recorded in this section.

### **Interview Observations**

The researcher recorded observations, impressions, and data not elsewhere noted in the questionnaire. The subject's affect and nonverbal behavior were recorded so as to compare them with other information that was obtained. Observations were combined with the TFA assessments to examine each subject's behavior.

### **TFA ASSESSMENT DURING INTERVIEW**

An essential component of the Risk For Relapse Questionnaire was the TFA assessment. Designed by Hutchins and Vogler (1988), the TFA assessment describes a client's thoughts, feelings, and actions in a specific situation. This section examined dieters' behavior at critical times in weight-loss treatment using the TFA Triangle, a triangle-shaped diagram with thoughts (T), feelings (F), and actions (A) located at respective vertices.

As part of the interview, the researcher obtained a TFA assessment, called a TFA Triad, of each subject's thoughts (T), feelings (F), and actions (A) for each of the three critical times. Each subject's responses was probed so as to obtain specific thoughts, feelings, and actions. TFA assessments along with a detailed analysis were sought in order to compare how a dieter's response after lapses in

"high-risk" situations changes from the beginning of treatment, end of treatment, to one year posttreatment.

### **High-risk Situations**

Of primary interest in this study was subjects' behavior after lapses in "high-risk" situations. Prior to treatment, certain situations (e.g., a dinner banquet with a wide display of food; built-up stress at work; argument with spouse) triggered overeating episodes where loss of control was experienced. After treatment, these same "high-risk" situations pose potential threat for lapses which can lead to weight-loss relapse (Brownell et al., 1986).

Subjects were given the following examples of "high-risk" situations that can lead to overeating. The three examples are generic and may not have applied specifically to all subjects. The purpose of the scenarios, however, was to illustrate three areas of potential risk for weight-loss relapse.

#### Interpersonal

1. You and your partner have an argument and when he/she goes to bed you "raid the refrigerator."

#### Environmental

2. You're invited to a dinner banquet and plan to not eat. When you arrive, however, you are so tempted by the array of food that you overeat.

#### Intrapersonal

3. You have a very stressful day at work and as soon as

you get home you eat.

Subjects were asked to describe their behavior retrospectively in "high-risk" situations that lead to lapses. Subjects were asked to think of three situations, representing the three categories of risk factors (interpersonal, environmental, intrapersonal), that most often lead to lapses. They were to describe their behavior after, i.e. immediately following, the most recent episode of overeating in those situations. "High-risk" situations were denoted as those situations, defined by the subject, that were associated with overeating (rapid consumption of large amounts of food in a discrete period of time). Subjects identified their own interpersonal, environmental, and intrapersonal "high-risk" situations since the interviewer could not determine what was and what was not considered "high risk" for each subject.

## **IMPLEMENTATION**

### **Interview Format**

Clients were either asked in person or via telephone whether they would volunteer for the study. Since most clients were either entering or completing the weight-loss program face-to-face contact was possible. Most clients who had completed the program a year ago were contacted via telephone. The interviews were conducted by the researcher and lasted one hour. During the initial contact with the subjects, the Informed Consent (Appendix B) was completed.

The researcher asked the subjects all the questions in the first four sections of the questionnaire prior to the TFA assessment. All subjects were given the option to omit any response during the questioning. Subjects rated their responses on a 10-point scale for the interpersonal, environmental, and intrapersonal risk factors.

### **TFA Clinical Assessment**

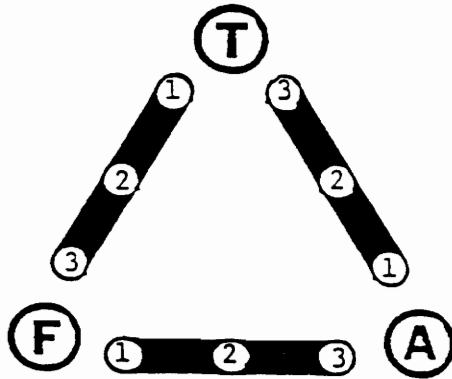
During each interview, behavior assessments were made of the dieters for the three "high-risk" situations. The TFA Triangle was used to systematically assess each subject's behavior after lapses in the three "high-risk" situations. Responses to the following questions were marked on a bipolar scale on each side of the triangle as shown in Figure 1. While looking at the TFA Triangle, subjects were asked to respond to the following questions relevant to their self-defined "high-risk" situations:

1. Were you more Thinking (T) or Feeling (F)  
or about in the middle?
2. Were you more Feeling (F) or Acting (A)  
or about in the middle?
3. Were you more Thinking (T) or Acting (A)  
or about in the middle?

The researcher recorded descriptive responses through analysis of thoughts, feelings, and actions. The subject's behavior was described and clarified by the TFA clinical

## Question 1

Were you more Thinking or  
Feeling or about in  
the middle?



## Question 3

Were you more Acting or  
Thinking or about in  
the middle?

## Question 2

Were you more Feeling or  
Acting or about in  
the middle?

Figure 1. The TFA Triangle and three critical questions.

assessment. The responses marked on each side of the triangle connected to form a TFA Triad as shown in Figure 2. After the TFA Triad was formed, the subjects were probed on each triad so as to obtain specific, individual thoughts, feelings, and actions relevant to each of the "high-risk" situations.

#### **DATA ANALYSIS**

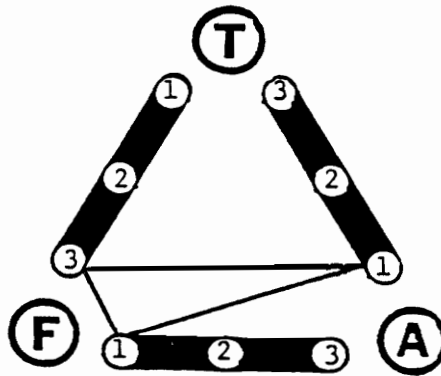
Data collected from this study were analyzed both quantitatively and qualitatively. Descriptive statistics were calculated on Number Cruncher Statistical System (NCSS, 1987) for all continuous variables. Scores were generated from the three major areas of interest in the Risk For Relapse Questionnaire (interpersonal, environmental, and intrapersonal). Means, standard deviations, and frequency distributions were calculated for all continuous variables.

Subjects' statements from the TFA clinical assessment were transcribed in raw form to the askSam Data Management System (askSam Systems, 1987) for analysis. Subjects' probed responses during the TFA assessment were particularly important to help understand individual behavior in "high-risk" situations which resulted in lapses.

#### **EVALUATING RISK FACTORS**

All items on the Risk For Relapse Questionnaire were coded on a 10-point scale for the risk factors (interpersonal, environmental, and intrapersonal). For NCSS

I shouldn't have done it



I felt guilty  
I was terrified  
I was angry, tired

I continued to eat  
I went to bed

Figure 2. Sample descriptions supplied by a client after lapsing in a "high-risk" situation. These resulted in an F-A Triad, indicating the client was likely to continue eating because of a lack of attention to thoughts and the strong emphasis placed on negative feelings.



analysis, several items were transformed to ensure that all items on the 10-point scale reflected high scores being indicative of high risk for relapse and lower score for lower risk. Those questions that were transformed were: Interpersonal (#B, #D, #E); environmental (#A); intrapersonal (#C). Means were obtained for the risk factors and ANOVA was used to determine significance. A follow-up Newman-Keuls test was used to determine specific differences among groups.

#### OPERATIONALIZING TFA TRIADS

TFA Triangles were used to collect descriptive data on the interaction of the subjects' thoughts, feelings, and actions after lapses in "high-risk" situations at the three critical times (beginning of treatment, end of treatment, and one year posttreatment).

TFA Triad responses were numerically operationalized. Each point on the TFA Triad represents a place on one of three bipolar scales of the TFA Triangle: one point each on the Thinking-Feeling, Feeling-Acting, and Acting-Thinking scales.

Each point of the TFA Triad was assigned a numerical value. Responses represented by a mark at the ends of the bipolar scales were given a 3-point value for the particular variable located at the endpoint and were designated by a capital letter T, F, or A. Mid-point responses on each of the scales were given a 2-point value for each of the

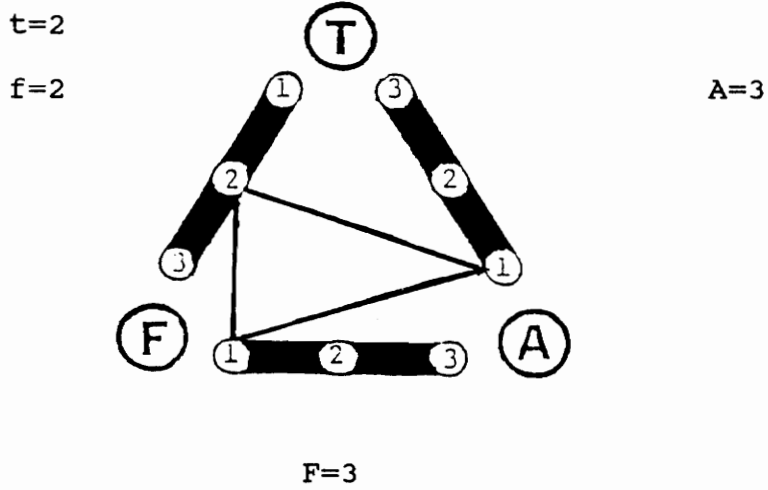
bipolar variables and were designated by small letters t, f, or a.

T, F, and A numeric values were calculated for each TFA triad by summing the thinking, feeling, and acting values at the respective points on each bipolar scale of the TFA Triangle. An example of this transformation is shown in Figure 3.

#### TFA TRIANGLE TOTAL WEIGHTED SCORES

TFA Triangles were obtained from each subject in interpersonal, environmental, and intrapersonal "high-risk" situations. As shown in Appendix C, descriptive scores for thoughts, feelings, and actions were determined for each subject's three TFA Triads. Points on each of the subject's bipolar scales were weighted so as to obtain total T, F, and A scores for each TFA Triangle. In order to compare the three groups with one another, total group scores were obtained by adding of the weighed T, F, and A scores for the three "high-risk" situations (Appendix D). Obtaining group totals allowed the researcher to compare the groups for total T, F, and A scores.

The nine points on the TFA Triangle were weighted so that the intensity of each component of TFA behavior was calculated. Intensity of groups' scores was important when describing patterns. When reporting behavior patterns, the components were arranged according to their relative weight. In an F-T-A pattern, for example, Feelings were most intense




---

Summary:  $t_2$   $f_2$   
 $F_3$   
 $A_3$

---


$$t_2 \quad F_5 \quad A_3 \quad =$$

Interaction TFA score =  $F_5 A_3 t_2$

Figure 3. The scoring of the TFA Triad.

followed by Thinking and Acting. By describing behavior components based on intensity, the researcher was able to note quantitative changes in behavior patterns across the three groups.

### BIPOLAR SCORES

Bipolar scales (T-F, F-A, A-T) were used to compare dieters' scores on the three behavior dimensions. As shown in Appendix E, scores were obtained for each of the bipolar scales. Extreme responses on the scale were given a 3-point value, and mid-point responses were given a 2-point value. It is noted that a 3-point value on one end of the scale indicated an absence of a numerical value at the other end. Mid-points were assigned two points and both behavior dimensions received 2 points. Total scores were obtained for the three groups on the bipolar scales. This allowed the researcher to note changes in the groups' bipolar scales for each of the three time periods in the weight-loss process.

The same numerical procedure used for TFA Triads was used to operationalize the bipolar scales. For the T-F scale, for example, if a subject selected a mid-point then the bipolar score was represented as  $t_2 f_2$ . If on the A-F scale, the F vertex was selected the bipolar score was  $F_3 A_0$ . By looking at a numerical chart of bipolar scores, as in Appendix E, it is possible to construct a TFA Triad.

## CHAPTER FOUR

### FINDINGS

This chapter presents the descriptive and comparative data collected during personal interviews with clients at critical times in the weight-loss process. Documenting and analyzing dieters' behavior proved valuable for the purpose of comparing how TFA behavior changes from the beginning of treatment, end of treatment, to one year posttreatment. The TFA Clinical Assessment was used to collect both quantitative and qualitative data relative to how clients respond immediately following overeating episodes in "high-risk" situations.

The results from 87 dieters allowed the researcher to compare the groups across the three time periods. In addition, a comparison of the study's four weight-loss maintainers with the other subjects, particularly the 26 relapsers at one year posttreatment, provided insight into those individual behaviors conducive to successful maintenance during early post weight loss.

The results are organized around the three research questions presented in Chapter One. A review of the extant literature related to weight-loss relapse and the data collected from the weight-loss clients who participated in the study provided a means for answering the research questions.

**QUESTION 1**

**What are the primary research-based variables related to weight-loss relapse?**

Chapter Two addressed Question 1 in detail by presenting findings that researchers believe play a role in dieters' weight-cycling problem. The question is restated in this chapter and the findings are summarized.

The high relapse rates, over 90%, among dieters have lead to an upsurge of obesity research focusing on post weight loss. Many current weight-loss programs are merely "fad diets" attracting dieters interested in losing weight quickly. There are those programs, however, that are combining research-suggested strategies such as nutritional counseling, exercise, behavior modification, and medical supervision to ensure comprehensive treatment. Numerous studies show that a low-fat diet in combination with behavior therapy reigns superior to other methods in producing the most effective weight loss. Maintenance of that weight loss, however, is statistically unlikely and needs further empirical investigation. Relapse prevention techniques, individual attention, and continued professional support are suggested by researchers as necessary elements for successful maintenance.

Research points to various theories of weight-loss relapse including fat cell theory, set point theory, dietary factors, weight cycling, and a return to inappropriate eating. Although a singular factor cannot be pinpointed as

the culprit, it can be concluded that regaining lost weight results from both physiological and psychological causes.

Several fundamental findings emerged from the literature regarding the definition of relapse and how weight-loss relapse compares with relapse in other addictions. More and more researchers are suggesting that food be included alongside other substances such as alcohol due to its addictive nature.

### **What is weight-loss relapse?**

Whereas obesity is defined as 20% above ideal body weight, weight-loss relapse is medically defined as regaining at least 20% of lost weight. This study was more interested in the process of relapse, defined as dieters' return to maladaptive responses after lapses that typically lead to more overeating and, consequently, the regaining of lost weight (Brownell et al., 1986). Relapse of weight loss begins when the dieter's response to a lapse, which can be defined as a single event, a reemergence of a previous habit, is maladaptive leading to more overeating. The dieter's response to the lapse determines whether relapse has occurred. Relapse, therefore, is a process that can occur as the result of an individual's perceived loss of control in "high-risk" situations.

Shortly after treatment, clients are faced with situations that are associated with overeating. Relapse begins when clients not only fail to prepare for the

tempting situation but, more important, when they respond to overeating by feeling defeated and angry which lead to more overeating. A problem that remains in post weight loss is the fact that many clients abandon techniques learned in treatment and resort to previous maladaptive behavior such as overeating and inactivity.

### **How does weight-loss relapse compare with relapse in other addictions?**

An addiction is a complex, progressive behavior pattern having multiple negative consequences. What sets this behavior pattern apart from others is the individual's overwhelmingly pathological involvement in or attachment to it, subjective compulsion to continue it, and reduced ability to exert personal control over it. Unlike alcohol and tobacco where abstinence is defined as not using the substance at all, dieters must set their own rules to define what constitutes overeating. Unlike relapse in other addictions, weight-loss relapse is not defined as "using" the substance; instead, weight-loss relapse is a process that occurs as the result of frequent lapses.

The pattern of overeating is similar across addictions and the behavior continues despite its negative impact on the physical, psychological, and social function of the individual. Similar to people recovering from other addictions, individuals with food addictions report the following symptoms: a preoccupation with the substance



(food) and a distortion in lifestyle to support eating patterns; a private disturbance in eating patterns with numerous unsuccessful attempts to change the destructive pattern; uncontrollable food cravings to eat even when full; overeating to "sedate" negative emotions; self-degradation as the result of not being able to control food intake; obsessive-compulsive behavior such as continuing to overeat due to a minor deviation in one's diet; and the use of food for immediate gratification.

The literature supported the need for further research in the area of post weight loss. The high relapse rates despite researchers' and counselors' efforts, the lack of weight-loss maintenance programs, and the puzzling cycle of losing and regaining weight prove that a better understanding of the obese individual is imperative to enhance weight-loss maintenance.

#### **DEMOGRAPHIC VARIABLES**

All clients who were approached by the researcher agreed to participate in this study. Clients were chosen from a specific weight-loss program in Southwest Virginia. A total of 87 adult subjects were placed in three separate groups (beginning of treatment, end of treatment, and one year posttreatment) were placed in critical time periods in the weight-loss process. The three groups consisted of 30, 27, and 30 subjects, respectively. To meet selection

criteria, all subjects were moderately obese and repeat dieters upon entering the 26-week weight-loss program.

Table 2 presents the demographic variables of gender, age, marital status, race, and annual income for the three groups. Means, standard deviations, and frequencies help define the individual groups, and they aid in the comparison among the three groups.

#### **Group One (Beginning of Treatment)**

Twenty-three females and 7 males (n=30) represented the beginning of treatment. The first 30 clients who entered weight-loss treatment at the designated site during July 1992 were selected for inclusion in this study. The mean weight of the group was 213.9 lb. (52% above ideal body weight).

The mean age of the group was 38.03 years with a standard deviation of 9.63. The age range of the subjects was 23 to 59 years. Nineteen subjects were married, 5 were single, 4 were divorced, and 2 were widowed. There were 28 white subjects and 2 black subjects. By coincidence, this was the only group in the study that had any black subjects. The mean annual income for this group was \$53,000.

#### **Group Two (End of Treatment)**

Eighteen females and 9 males (n=27) were included in Group Two. Subjects in this group represented the total number of clients who completed treatment at the designated

Table 2

Demographic Variables of Study Subjects for All Three Groups

Demographic Variable	Group		
	1 (Begin)	2 (End)	3 (1 Yr. Post)
<b>Gender</b>			
Female	23	18	19
Male	7	9	11
<b>Age</b>			
Mean	38.03	37.44	38.53
SD	9.63	7.44	6.18
Range	23-59	25-61	24-52
<b>Marital Status</b>			
Married	19	23	23
Single	5	2	6
Divorced	4	1	0
Widowed	2	1	0
Separated	0	0	1
<b>Race</b>			
White	28	27	30
Black	2	0	0
<b>Annual Income</b>			
Mean	\$53,000	\$57,100	\$66,000

site during the month of July 1992. The mean weight of the group at the beginning of treatment was 222.6 lb. (56% above ideal body weight); the end-of-treatment mean weight was 156.5 lb. (a decrease in body weight of 29%).

The mean age of this group was 37.44 years with a standard deviation of 7.44. The age range of the subjects was 25 to 61 years. Twenty-three subjects were married, 2 were single, 1 was divorced, and 1 was widowed. All 27 subjects in the study were white. The mean annual income for this group of subjects was \$57,100.

#### **Group Three (One Year Posttreatment)**

Nineteen females and 11 males (n=30) were the first 30 clients, from a list of 46, the researcher was able to contact via telephone. In the process of obtaining 30 subjects, five clients on the list were unsuccessfully able to be contacted due to disconnected telephones. The mean weight of the group was 201.2 lb. (an increase of 52% since the end of treatment). There were 13.3% weight-loss maintainers and 86.7% weight-loss relapsers.

The mean age of the group was 38.53 years with a standard deviation of 6.18. The age range of the subjects was 24 to 52 years. Twenty-three subjects were married, 6 were single, and 1 was separated. All 30 subjects were white. The mean annual income of the group was \$66,000.

### ANALYSIS OF DEMOGRAPHIC VARIABLES

Statistical analyses were run to determine if the demographic variables of gender, age, and income were significantly different. By cursory review, significant differences were not expected with marital status and race; therefore, a statistical analysis was not performed. A one-sample chi-square test revealed no significant differences on gender ( $\chi^2 = 1.34$ ,  $df = 2$ ,  $p = .51$ ). No statistical differences were found with subjects' age, as determined by one-way ANOVA,  $F = .16(2,84)$ ,  $p = .85$ . A one-way ANOVA also showed no significant differences with income ( $F = 1.10(2,84)$ ,  $p = .34$ ). Thus, it may be reasoned that the three samples were representative of the population.

#### Primary Source of Support

As part of the interview process, subjects were asked to identify their primary source of emotional support regarding weight-loss efforts. All married subjects considered their spouses, whereas single subjects named their friends as primary means of support. Only one subject, who was divorced and currently "distanced" from most people in her life, struggled with this question. She finally mentioned her parents as primary means of support. Table 3 presents the relative frequency of subjects' primary source support for all three groups.

Table 3

Relative Frequency of Primary Source of Support for All  
Three Groups

Source of Support	Group		
	1 (Begin)	2 (End)	3 (1 Yr.Post)
Spouse	17	23	24
Friend	10	4	6
Parent	2	0	0
Sibling	1	0	0

**QUESTION 2**

**What is the relation of weight-loss relapse risk factors on three critical times (beginning of treatment, end of treatment, and one year posttreatment) in the weight-loss process?**

This study specifically examined three categories of "high-risk" situations (interpersonal, environmental, and intrapersonal) in order to get a more complete picture of how dieters respond to research-based risk factors. Subjects were asked to respond to 10-point rating scales related to factors that may pose risk for relapse. All three groups (beginning of treatment, end of treatment, and one year posttreatment) were asked the same questions on the Risk For Relapse Questionnaire (Appendix A). The questions were designed with high scores being indicative of high risk for relapse; lower scores indicated lesser risk for relapse in that particular category.

**SUMMARY OF RISK FACTORS**

Even though the risk factors for weight-loss relapse are primarily applicable to post weight loss, all three groups in this study were asked about those factors. The literature supports that "high-risk" situations are relevant at all stages of weight loss since it is a dieter's ability to handle these situations at all times that determines whether or not a lapse will occur. All of the subjects indicated to the researcher that they were able to identify

with the content of the rating scales by the way they answered the questions without hesitation.

Dieters in this study responded differently to the risk factors contingent upon the stage of weight loss they were in at the time of the study. For all three categories of risk factors (interpersonal, environmental, and intrapersonal) the highest means were for Group 1 (beginning of treatment), Group 3 (one year posttreatment), and Group 2 (end of treatment), respectively. Subjects in Group 2 consistently showed a lesser chance, based on the means of the group in comparison to the means of Groups 1 and 3, of weight-loss relapse.

Based on the means of each risk-factor category, Group 1 showed the highest probability of weight-loss relapse. Similarly, Group 3 showed a high probability of relapse, particularly in comparison to Group 2. The high scores for Groups 1 and 3, indicating high probability of relapse, are the result of subjects' lack of engagement in research-suggested behaviors conducive to successful weight-loss maintenance.

It was Group 2 that consistently had the lower means possibly indicating the impact of the weight-loss program's requirements. The study's designated program has a number of requirements (e.g., completing a diet diary, exercising, maintaining contact with the program); therefore, subjects at the end of treatment were able to respond favorably, showing little to no chance of relapse, to these and other



items on the Risk For Relapse Questionnaire. Unlike the subjects in the other two groups, the subjects in Group 2 were engaging in research-suggested behaviors conducive to successful weight-loss maintenance.

**How do interpersonal risk factors for relapse relate to the three critical times in the weight loss process?**

Four 10-point scales addressed interpersonal factors related to the dieters' relationships with partners, families, friends, and weight-loss counselors. Table 4 illustrates that differences among the groups were statistically significant as determined by one-way ANOVA,  $F(2,84) = 35.51$ ,  $p < .0001$ . The means for the three groups were 5.44, 2.56, and 4.95, respectively. A Newman-Kuels test ( $p < .05$ ) indicated that the scores for Groups 1 and 3 were significantly different from Group 2 but not from one another.

**How do environmental risk factors for relapse relate to the three critical times in the weight-loss process?**

On six 10-point scales, subjects in each group were asked to rate their frequency of environmental factors that may increase risk for relapse such as unexpected life events and compulsive overeating. One-way ANOVA,  $F(2,84) = 58.09$ ,  $p < .0001$ , indicated that differences among the groups were statistically significant (Table 5). The group means were 6.43, 3.14, and 5.65, respectively.

Table 4

Analysis of Variance of Interpersonal Risk Factor Scores for Three Groups

---

Source	df	SS	MS	F
Time	2	1895.99	947.99	35.51*
Error	84	2242.72	26.69	
Total	86	4138.71		

---

\*  $p < .0001$

Table 5

Analysis of Variance of Environmental Risk Factor Scores for Three Groups

---

Source	df	SS	MS	F
Time	2	7219.99	3609.99	58.09*
Error	84	5220.24	62.15	
Total	86	12440.23		

---

\*  $p < .0001$

Mean scores for Groups 1 and 3 were significantly different from Group 2 but not from one another (Newman-Keuls,  $p < .05$ ).

**How do intrapersonal risk factors for relapse relate to the three critical times in the weight-loss process?**

Subjects responded to 10 rating scales assessing their frequency of emotional eating and various attitudes related to dieting. As shown in Table 6 differences among the groups were statistically significant, as determined by one-way ANOVA,  $F(2,84) = 58.09$ ,  $p < .0001$ . A follow-up Newman-Keuls ( $p < .05$ ) showed that the mean scores for Groups 1 and 3 were significantly than Group 2; means of Groups 1 and 3 were not significantly different from one another. The means of the three groups were 5.84, 2.75, and 5.56, respectively.

### QUESTION 3

**What are the thoughts, feelings, and actions of dieters after lapses in "high-risk" situations?**

Understanding the thoughts, feelings, and actions of dieters after lapses in "high-risk" situations was of primary interest in this study. Both quantitative and qualitative analyses provided the methodological framework to examine how dieters' TFA behavior changes at the three critical time periods.

As explained in Chapter Three, subjects were asked to

Table 6

Analysis of Variance of Intrapersonal Risk Factor Scores for  
Three Groups

---

Source	df	SS	MS	F
Time	2	16375.20	8187.59	56.64*
Error	84	12142.87	144.56	
Total	86	28518.07		

---

\*  $p < .0001$

identify interpersonal, environmental, and intrapersonal "high-risk" situations that typically lead to lapses. Subjects' thoughts, feelings, and actions after the lapse were recorded by the researcher for each of the separate "high-risk" situations. All subjects, including those at the end of treatment, had experienced at least one lapse within the last two weeks.

Table 7 presents the categorical themes and relative frequency for subjects' interpersonal "high-risk" situations. An interpersonal "high-risk" situation was defined as a positive or negative event, involving someone else, that typically leads to lapses (e.g., argument with spouse). For all three groups, conflicts with one's spouse, including arguments with and criticism from one's spouse, were the most frequently-identified situations.

Across all three groups, subjects consistently stated that receiving criticism from employers, family and friends represented situations that typically lead to lapses. Another category (persuaded by employers and friends to eat) represented a problem for both groups 1 and 2 but not for group 3.

Table 8 presents the categorical themes and relative frequency for subjects' environmental "high-risk" situations. An environmental "high-risk" situation was defined as a positive or negative event, an external situation not necessarily involving another person, that typically leads to lapses (e.g., dining at a restaurant).

Table 7

Categorical Themes and Relative Frequency of Interpersonal  
High-risk Situations

High-risk situation	Group		
	1 (Begin)	2 (End)	3 (1 Yr. Post)
<b>Conflict with others</b>			
Spouse	10	10	12
Employer	7	8	6
Family	5	4	9
Friend	5	2	3
<b>Persuaded to eat by others</b>			
Employer	1	2	0
Friend	2	1	0

Table 8

Categorical Themes and Relative Frequency of Environmental  
High-risk Situations

High-risk situation	Group		
	1 (Begin)	2 (End)	3 (1 Yr.Post)
Out-of-home eating			
Restaurants	10	11	9
Holidays	4	4	5
Traveling	3	4	5
Parents' house	4	2	1
Time of day			
Nighttime	5	5	6
Afternoon	4	1	4

For all three groups, eating outside of the home (including eating in restaurants, celebrating holidays at work or in restaurants, traveling, and eating at one's parents' house) represented environmental situations that typically lead to overeating. Eating at nighttime and in the afternoon after work were identified as approximate times of day when some subjects experience lapses.

Table 9 presents the categorical themes and relative frequency for subjects' intrapersonal "high-risk" situations. An intrapersonal "high-risk" situation was defined as positive or negative subjective, individual events that typically lead to lapses (e.g., a negative emotion such as stress). Subjects' negative emotions such as stress and anger were triggers to lapses. The feeling of stress, both work-related stress and stress in general, was the most frequently-identified negative emotion for all three groups. Subjects' self-degradation, i.e., negative self-talk such as "I'm no good at anything," represented another category because it was mentioned two to four times across all groups.

#### **THOUGHTS, FEELINGS, AND ACTIONS**

Through the use of the TFA Assessment, subjects in this study identified specific thoughts, feelings, and actions relevant to behavior after lapses in "high-risk" situations. The context of these responses was analyzed using the askSam Data Management System.



Table 9

Categorical Themes and Relative Frequency of Intrapersonal  
High-risk Situations

High-risk situation	Group		
	1 (Begin)	2 (End)	3 (1 Yr.Post)
<b>Negative emotion</b>			
Stress	14	9	19
Anger	2	4	5
Depression	4	3	1
Loneliness	1	3	2
Boredom	2	3	1
Tired	4	1	0
<b>Negative attitude</b>			
Self-degradation	3	4	2

All subjects were able to identify thoughts, feelings, and actions in the three situations they chose to represent "high risk" for potential overeating. All subjects were probed so as to obtain as much TFA data as possible. Review of the interview tapes and the text in which these terms appeared allowed for content and context analysis. In order to classify the TFA terms into positive, negative, and neutral categories, the researcher analyzed the text in relation to the known content. While the researcher interpreted the context of the terms and made an analysis of whether it was a thought, feeling, or action, this designation was done with careful examination of the interview responses, taped interviews, and TFA descriptors.

### **Thoughts**

Table 10 presents the thought responses identified by the subjects for all three groups. A major trend that emerged was the high frequency of negative thoughts and lack of positive thoughts for Group 1 (beginning of treatment) and Group 3 (one year posttreatment). Group 1 had no positive thoughts and responded to "high-risk" situations with self-degradation (e.g., "I'm a failure"). This type of thinking in addition to thinking "I can't change" and "I shouldn't have done that" was the major theme for Groups 1 and 3. Group 3 did, however, have more positive thoughts (e.g., "I need a plan" and "There is hope") than Group 1.

Table 10

Relative Frequency of Thoughts Related to High-risk Situations

Thought	Group		
	1 (Begin)	2 (End)	3 (1 Yr.Post)
<b>Positive</b>			
Planning for future	0	32	8
Perceiving hope	0	17	3
De-emphasizing lapses	0	11	0
<b>Negative</b>			
I'm a failure	25	0	7
I can't change	20	0	9
I shouldn't have done that	14	10	10
There's no use in trying	5	0	2
I don't care	5	0	2
<b>Neutral</b>			
Why did I do that?	3	0	5

Group 2 (end of treatment) had a predominant frequency of positive thoughts showing a need for planning, perceiving hope in the situation, and de-emphasizing lapses. "I shouldn't have done that" was the only negative thought present for Group 2. Whereas Groups 1 and 3 tended to focus on self-degradation and perceiving a lack of hope in the situations, Group 2 did not show such negative thought patterns.

All three groups showed a consistent frequency of the negative thought theme "I shouldn't have done that." Consistent with the literature, this study showed that dieters, even after receiving treatment, do not like to have lapses. Thoughts in this study were exclusively negative and self-degrading at the beginning of treatment. By the end of treatment, subjects' thoughts were more positive and focused on planning to recover. One year posttreatment showed a return to negative thoughts with a minimal focus on planning to prevent future lapses.

### **Feelings**

Table 11 presents feeling responses identified by the subjects for all three groups. Negative feeling responses were the largest category for all three groups. Anger and guilt were consistently prevalent for all groups. Both anger and guilt had the highest frequency for Groups 1 and 3, whereas guilt and disappointment were the most frequent for Group 2. Unlike Groups 1 and 3, Group 2 did not have the

Table 11

Relative Frequency of Feelings Related to High-risk Situations

Feeling	Group		
	1 (Begin)	2 (End)	3 (1 Yr.Post)
<b>Positive</b>			
Determined	0	5	0
<b>Negative</b>			
Guilty	21	21	38
Angry	20	10	20
Upset	6	0	0
Disgusted	10	0	5
Bloated	14	0	7
Depressed	12	0	6
Out of control	9	0	7
Helpless	10	0	5
Disappointed	0	20	7
Scared	0	6	0
Bad	7	7	7
<b>Neutral</b>			
Neutral	0	6	0
Ambivalent	0	5	0

negative feelings of being upset, disgusted, bloated, depressed, out of control, and helpless. Along with guilt and anger, Group 2 did also showed frequencies for the negative feelings of scared and bad.

Group 2 was the only group that showed a positive feeling response (determined) and neutral feeling response (neutral and ambivalent). Group 2 did not show primarily positive or neutral feelings; instead, they responded, with approximately the same frequency as the other two groups, to lapses with guilt and anger.

Dieters at all three time periods feel angry and guilty after they experience lapses. This is a significant finding in this study because no studies were found that report dieters' feelings at these three time periods, particularly for the end of treatment. Lapses are only the beginning of the chain of events in the relapse process. The literature clearly points out that if dieters continue to have negative feelings, the relapse process becomes active. If dieters, however, feel negative yet do not dwell on these feelings then the relapse process is less likely to proceed. Subjects in Group 2, then, are still at risk for relapse if they continue to feel angry and guilty.

### **Actions**

Table 12 presents the action responses identified by the subjects for all three groups. Negative actions (overeating, hiding wrappers, crying) and neutral actions

Table 12

Relative Frequency of Actions Related to High-risk Situations

Action	Group		
	1 (Begin)	2 (End)	3 (1 Yr.Post)
<b>Positive</b>			
Exercise	2	48	16
Diet/Plan meals	5	28	20
Talk to someone	0	2	2
Write it down	0	5	1
Remove self	0	8	2
<b>Negative</b>			
Eat more	39	0	24
Hide food wrappers	11	0	9
Cry	10	4	6
Ignore others	8	0	4
Drink alcohol	5	0	6
<b>Neutral</b>			
Sleep	22	2	16
Watch TV	19	3	12
Nothing	18	1	5
Fix dinner	6	0	6
Read	3	5	3

(sleeping, watching TV, doing nothing) emerged as major activities for Group 1. Subjects at the beginning of treatment showed very little emphasis on positive actions such as dieting and exercising.

Group 2 showed a consistent trend toward responding to lapses with positive actions (exercising, planning meals, removing oneself from the situation, writing down one's mistakes). Consistent with the literature which suggests that treatment encourages dieters to engage in more productive activities such as exercise, Group 2 dealt with lapses almost exclusively with positive actions.

Group 3 had a more equal distribution of positive, negative, and neutral actions. Similar to Group 1, Group 3 showed a return to overeating and sleeping after lapses. Group 3 did, however, show some positive actions as its subjects responded strongly to dieting and exercising.

#### **SUMMARY OF THOUGHTS, FEELINGS, AND ACTIONS**

The qualitative analysis of the subjects' TFA behavior revealed major trends among the three groups. Group 1 reported exclusively negative thoughts, feelings, and actions. The predominant pattern presented by Group 1 was a negative reaction to lapses: "I'm a failure" (T); feeling guilty (F); continuing to overeat (A). This group showed no focus on the future or the possibility of change. The self-directed thoughts were personally degrading with a strong emphasis on weak self-efficacy. This group's pattern of



feeling guilty and angry leading to more compulsive overeating despite negative consequences is what some researchers (e.g., Donovan & Marlatt, 1988) refer to as the addictive cycle.

Group 2 showed primarily positive thoughts and actions, but continued to respond to lapses with negative feelings. A pattern for Group 2 emerged based on high frequency of responses: Need for a plan (T); feeling guilty (F); exercising (A). The subjects in this group showed no signs of self-degradation typical for obese clients experiencing lapses. Instead, they showed increased self-efficacy with a strong emphasis on concrete planning. Strong emphases on exercising and dieting were seen as viable alternatives despite feelings of guilt and disappointment.

Similar to Group 1, Group 3 responded with primarily negative thoughts, feelings, and actions; this group did, however, report a large number of positive actions such as exercising and dieting. Based on the highest frequency of responses, Group 3 showed a negative pattern: "I shouldn't have done that" (T); feeling guilty (F); continuing overeating (A). This group's thoughts were primarily negative, but there was a tendency for planning. Self-degradation was noted but to a much lesser degree than it was for Group 1. Similar to the other two groups, this group showed extremely high frequency of negative feelings. Unlike Groups 1 and 2, Group 3 showed a strong equal distribution of positive, negative, and neutral actions.

This qualitative overview was the framework from which further analysis of thoughts, feelings, and actions evolved. Based on the content and frequency of thoughts, feelings, and actions, the three groups showed significant trends at the different time periods. Subjects' individual TFA behavior was able to be recorded, and group themes emerged from these responses. The groups showed definite trends contingent upon the time period within the weight-loss process. This researcher was also interested, however, in how dieters' TFA patterns compared with one another quantitatively. Combining qualitative and quantitative data allowed the researcher to strengthen results by connecting content and intensity of TFA behavior after lapses.

#### GROUP TFA TRIANGLES

TFA Triads were obtained from each subject in interpersonal, environmental, and intrapersonal "high-risk" situations. Descriptive scores for thoughts, feelings, and actions were determined for each subject's three TFA Triads (Appendix C). As described in Chapter Three, points on each of the subject's bipolar scales were weighted so as to obtain a total T, F, and A score for each TFA Triangle. As shown in Appendix D, total group scores were obtained by adding all of the weighted T, F, and A scores for the three "high-risk" situations.

Table 13 presents the TFA Triangle total weighted scores for all three groups. As explained in Chapter Three,

Table 13

TFA Triangle Total Weighted Scores for All Three Groups

High-risk Situation									
<u>Group</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T	F	A	T	F	A	T	F	A
1 (Begin)	105	138	54	120	142	32	101	151	39
2 (End)	133	64	76	127	69	76	127	75	68
3 (Post)	112	120	78	98	127	85	98	130	76

each behavior domain was compared across all three groups; for example, the total score for thoughts in Group 1 was compared to the total scores for thoughts in Groups 2 and 3, and the same was done for feelings and actions.

### **Thoughts**

Group 2 had a T-A-F sequence for all three "high-risk" situations. Total T scores (133, 127, 127) represented the highest behavioral domain for all three situations within Group 2. Subjects were preoccupied with thoughts such as "I need to plan for my next meal," "I know I can recover only if I think about what I'm doing," and "I wish I hadn't done that but I did and it's now over." The subjects showed a strong need to plan for future situations that may be potentially dangerous for overeating. As noted earlier, this group still experienced guilt and anger after lapses, but the need to plan and recover from the lapse received more emphasis.

The total T scores for Group 2 were 7 to 28 points and 21 to 28 points higher than Groups 1 and 3, respectively. Subjects in Groups 1 and 3 were primarily preoccupied with negative thoughts such as "I'm a failure" and "I shouldn't have done that." While the thought scores for Groups 1 and 3 were not considerably lower than Group 2, they did reflect the groups lack of emphasis placed on thoughts at the beginning of treatment and one year posttreatment. At the

end of treatment, subjects were focused on thinking and those thoughts were exclusively positive.

### **Feelings**

Groups 1 and 3 had an F-T-A sequence across all three "high-risk" situations. Group 1 showed higher total F scores (149, 142, 151) in comparison to Group 2 (64, 69, 75) and Group 3 (120, 127, 130). Whereas total F scores were the highest for Group 1, they were the lowest for Group 2. Subjects in Group 1 expressed exclusively negative feelings (guilty, angry, bloated, depressed, disgusted, and helpless) after lapses. In terms of subjects' feelings, the most noticeable difference among the groups was the lesser emphasis placed on feelings for Group 2, which represented behavior at the end of treatment. The group representing one year posttreatment showed an increased emphasis on feelings but not quite as much as Group 1. Negative feelings such as guilt and anger were noted across all three groups, and it was Groups 1 and 3 that strongly emphasized these feelings in comparison to thoughts and actions.

### **Actions**

Actions were not predominant in any of the groups but differences were noted among the groups. Among all action scores, total A scores were lowest in Groups 1 (54, 32, 39) and 2 (76, 76, 68). Of the three groups, Group 3 had the highest action scores (78, 85, 76) possibly because of the

wide range of positive, negative, and neutral actions noted by the subjects. Groups 1 and 2 had predominantly negative and positive actions, respectively.

Of importance was that action scores consistently increased across the groups. Subjects showed twice as much emphasis on actions in Group 3 than in Group 1 even though both groups had a sequence of F-T-A.

### BIPOLAR SCALES

Appendix E illustrates the bipolar scores for the interpersonal, environmental, and intrapersonal "high-risk" situations. Bipolar scales (T-F, F-A, A-T) were used to compare dieters' scores on the three behavior dimensions. The researcher was interested to see whether dieters showed a change in their emphasis placed on each of the bipolar scales.

Table 14 presents the total TFA bipolar scores for all three groups. For the three "high-risk" situations, the scores were consistent across all three groups. For example, the T-F interpersonal scores were similar to those scores for environmental and intrapersonal situations.

#### T-F Scale

Consistent across groups, Thinking increased 17 to 28 points from Group 1 to Group 2 and decreased to approximately the same level from Group 2 to Group 3. This finding was consistent with total T scores where Thinking

Table 14

Total TFA Bipolar Scores for All Three Groups


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High-risk Situation

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Group

	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T-F	F-A	A-T	T-F	F-A	A-T	T-F	F-A	A-T
1	39-63	75-24	30-66	43-58	84-12	20-77	30-69	82-13	26-71
2	65-23	41-53	23-68	60-30	39-54	22-67	58-31	44-50	18-69
3	47-59	61-40	38-65	43-61	66-36	49-55	43-61	69-30	46-55

---

was predominant for Group 2. Feelings decreased considerably (28 to 40 points) from Group 1 to Group 2, and they increased to approximately the same number from Group 2 to Group 3.

#### **F-A Scale**

Feelings decreased 34 to 45 points from Group 1 to Group 2. This finding was consistent across all three groups for all three "high-risk" situations. Feelings increased, however, 20 to 27 points from Group 2 to Group 3. Actions continued to increase across all three time periods. Actions increased 29 to 42 points from Group 1 to Group 2, and Actions decreased 13 to 20 points from Group 2 to Group 3.

#### **A-T Scale**

Actions decreased slightly (7 to 8 points) from Group 1 to Group 2 for interpersonal and intrapersonal situations; Actions increased 2 points for environmental situations. Actions increased 15 to 28 points from Group 2 to Group 3 across all three groups for all three "high-risk" situations. Thinking increased 2 points from Group 1 to Group 2 on interpersonal situations; Thinking decreased 2 to 10 points on environmental and intrapersonal situations. Thinking consistently decreased 3 to 14 points from Group 2 to Group 3 for all three situations.



### WEIGHT-LOSS MAINTAINERS

Valuable observations emerged as the result of conducting qualitative and quantitative analyses across the three groups. Within Group 3, weight-loss maintainers and relapsers were able to be compared with one another. As mentioned earlier in the demographic section, 13.3% (4/30) of the subjects were weight-loss maintainers. Because they represent the minority in this study and because they have what all dieters ultimately desire, i.e., maintenance, these four weight-loss maintainers deserved a closer examination.

The TFA Clinical Interview allowed the researcher to obtain subjects' specific, individual TFA responses. Appendix D presents the TFA Triangle weighted scores for subjects 61, 71, 78, and 81; Appendix E illustrates the bipolar scores for all three "high-risk" situations for the same four subjects.

#### Subject 61

This was a 39-year-old, married, white female who regained 11% of her lost weight. Her "high-risk" situations were: argument with spouse (interpersonal); attending cocktail parties (environmental); and work-related stress (intrapersonal). Consistent across all three situations, she responded to lapses with primarily positive thoughts, negative feelings, and positive actions. Typical thoughts were: "That wasn't that bad"; "I'm a dummy and I shouldn't have done that, but it did make me feel better"; "I'll do

better next time and I know I can"; and "I should have more control, but only if I plan." Feelings included guilt, depression, anger, and defeated. Actions included trying to get back on track, dieting, planning next outings, and on occasion more overeating.

#### **Subject 71**

This was a 42-year-old, married, white female who regained 1% of her lost weight. Her "high-risk" situations were: children not listening to me (interpersonal); going to restaurants (environmental); and stress related to work and caring for the children (intrapersonal). This subject responded with primarily positive thoughts, negative and positive feelings, and positive actions. Her thoughts included: "I need to get back on track"; "That didn't help matters much"; "I should have planned better"; "I let my mood get the best of me"; and "That was dumb, but I can do better." Feelings included guilty, bad, and discouraged. This subject's actions included planning the next time, increasing exercise, dieting, and writing down mistakes.

#### **Subject 78**

This subject was a 50-year-old, married, white male who regained 16% of his lost weight. "High-risk" situations named by this subject were: employer criticizing work (interpersonal); traveling and having to eat in restaurants (environmental); and work-related stress (intrapersonal).

Thoughts and actions were positive, whereas feelings were negative. Thoughts included: "I still have control and can do it"; "I'll have to cut my calories"; "I'm not sure why this is happening"; and "It's only a lapse." Feelings noted by this subject were bad, disappointed, guilty, and angry. Positive actions included working out, removing self from situation, and dieting.

### Subject 81

This subject was a 42-year-old, separated, white male who regained 4% of his lost weight. "High-risk" situations named by this subject were: separation from spouse (interpersonal); unplanned travel (environmental); and anger (intrapersonal). Thoughts were positive, feelings were negative, and actions were positive. Thoughts included: "I shouldn't be giving her that much control"; "I need to plan better," "I don't like overeating"; and "I don't have time to do my good behaviors"; and "If I have the time, then I can do okay." Feelings were angry and bloated. Actions included planning to deal with anger, getting back on track, restarting "behaviors," and walking.

### SUMMARY OF WEIGHT-LOSS MAINTAINERS

These four weight-loss maintainers (two white, married females; one white, married male; and one white, separated male) showed some unique TFA behavior that sets them apart from the other subjects in this study. Maintainers' mean

scores for all three risk factors were consistently lower, indicating lesser probability of relapse, than the mean scores for Groups 1 and 3 but not Group 2. The mean scores for interpersonal, environmental, and intrapersonal scales were 3.75, 4.20, and 4.12, respectively.

By adding the four subjects' TFA Triangle weighted scores across all three "high-risk" situations, the four subjects showed an A-T-F (55, 37, 27) sequence. This pattern, unlike any of those found for the groups in the study, shows a heavy emphasis on action. In fact, more than twice the emphasis is placed on actions than feelings. These four subjects reported primarily positive actions such as exercising, dieting, writing down mistakes, and planning.

Positive thoughts (e.g., minimizing lapses, planning for future events, and belief in oneself) were consistently mentioned by all four subjects. Interestingly, these subjects, similar to the other subjects in the study, also noted negative feelings such as guilt and anger. What sets these maintainers apart from the other subjects, however, is their strong emphasis on positive actions despite negative feelings. The subjects tended to have negative feelings but these feelings were de-emphasized. The unique combination of each maintainer's positive actions, positive thoughts, and negative feelings emerged as behavior patterns indicative of effective recovery from lapses.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The review of literature presented growing evidence that there's a much greater problem than obesity itself: Repeated cycling of losing and regaining weight has created serious medical and psychological problems for millions of Americans. Dieters continue to relapse at astonishingly high rates despite the billions of dollars spent on the numerous weight-loss programs available. The literature confirmed the need for this study and set the foundation for the researcher to focus on individual behavior as well as interpersonal, environmental, and intrapersonal factors related to weight-loss relapse. Various factors that could possibly influence a dieter to relapse were pinpointed; however, to the researcher's knowledge, this is the first study to compare dieters with one another on these factors that may pose "risk" for relapse.

Separately and in combination, quantitative and qualitative analyses provided insight into the interaction of dieters' thoughts, feelings, and actions. This study's findings showed that dieters do, indeed, differ contingent upon the time period within the weight-loss process. Further analysis revealed valuable information from the study's four weight-loss maintainers who differed from all

other subjects in terms of how they responded after lapses in "high-risk" situations.

The remainder of this chapter will summarize the findings, present conclusions, and provide recommendations relevant to weight-loss treatment and maintenance. Based on clinical experience and the study's findings, this researcher strongly contends that generic assessments and treatment are no longer acceptable means for dealing with the problems associated with obesity and post weight loss.

#### **SUMMARY OF FINDINGS**

TFA Systems™ was carefully selected as a systematic means of assessing individual behavior. Groups 1, 2, and 3 represented the beginning of treatment, end of treatment, and one year posttreatment, respectively. From variables included in the Risk For Relapse Questionnaire and individual TFA assessments of 87 dieters, the following findings emerged from the study:

1. A profile of the typical dieter who enters a supplemented-fasting program in Southwest Virginia is a white female, married, over the age of 30 years, and earns a mean family income of \$50,000.
2. While dieting, married clients rely on their spouses for emotional support, whereas dieters who are single,

separated, divorced, or widowed depend on friends, parents, or siblings.

3. All dieters in this study experienced at least one lapse within the last two weeks prior to being interviewed.

4. Based on interpersonal, environmental, and intrapersonal risk factors, dieters at the beginning of treatment have the highest probability of weight-loss relapse, followed by dieters at one year posttreatment and at the end of treatment. Although statistically significant differences did not exist between dieters before and after treatment, these two groups did have a statistically significant higher probability of relapse than dieters at the end of treatment.

5. Conflict with "significant others" and being persuaded by others to eat are interpersonal high-risk situations for dieters at all three time periods in the weight-loss process.

6. For dieters at all three times in the weight-loss process, out-of-home eating and nighttime and afternoon eating represent environmental high-risk situations.

7. Negative emotions such as stress and negative attitudes such as self-degradation are intrapersonal high-risk situations for dieters at all three time periods in the weight-loss process.

8. At the beginning of treatment and one year posttreatment, dieters have an F-T-A behavior pattern reflecting primary emphasis on feelings, followed by thoughts and actions.

9. At the end of treatment, dieters exhibit a T-A-F behavior pattern reflecting much emphasis on thinking, followed by actions and feelings.

10. Dieters' thinking behavior increases considerably in intensity from the beginning to the end of treatment, yet it decreases to approximately the same level at one year posttreatment.

11. The intensity of dieters' feelings decreases considerably from the beginning of treatment to the end of treatment, yet there is a strong increase in negative feeling behavior at one year posttreatment.

12. Even though actions are not a predominant behavior for any of the three time periods, dieters' acting behavior continues to increase in intensity across all three times.

13. Although posttreatment dieters show a small tendency to plan for future situations, they, similar to dieters at the beginning of treatment, report primarily negative thoughts centering on self-degradation and weak self-efficacy.

14. Dieters at the end of treatment report a predominant focus on positive thoughts showing a need for planning meals, perceiving hope in problematic situations, and de-emphasizing lapses.



15. At all three time periods, dieters report high frequencies of negative feelings such as guilt and anger.

16. Continuing to overeat, sleeping, and watching TV are predominant actions for dieters at the beginning of treatment.

17. Exercising, planning meals, and removing oneself from the situation are newly-acquired activities for dieters at the end of treatment.

18. At one year posttreatment, dieters engage in a mixture of positive and negative activities such as exercising and overeating.

19. On interpersonal, environmental, and intrapersonal risk factors, the four weight-loss maintainers showed less probability of weight-loss relapse than the study's other dieters.

20. Unlike any of the other patterns found in the study, the four weight-loss maintainers' A-T-F behavior pattern indicates a heavy emphasis on positive actions.

21. Dieting, exercising, and writing down mistakes are among the positive actions used by the four weight-loss maintainers.

22. The four weight-loss maintainers reported exclusively positive thoughts such as planning for future situations and minimizing lapses.

23. Similar to all the other dieters in the study, the four weight-loss maintainers experience guilt and anger after lapses; however, these negative feelings are de-emphasized by maintainers as actions take precedence.

24. The TFA Clinical Interview is a useful instrument in assessing the behavior patterns of dieters at critical times in the weight-loss process.

### CONCLUSIONS

The following conclusions are drawn from the study's findings. Where prudent, findings from the literature and from the study are restated.

#### **Heterogeneity Among Dieters**

The subjects in this study are representative of the majority of dieters who seem to experience weight-loss relapse shortly after treatment. Even though the researcher concludes that the study's dieters are derived from the same population, homogeneity among all dieters' needs is not assumed. The obese population is heterogeneous (Fitzgibbon & Kirschenbaum, 1990) and each dieter must be individually assessed and treated to meet specific needs.

Consistent with the literature regarding the typical client who participates in formal weight-loss programs (Blackburn et al., 1989; Brownell & Foreyt, 1986), the

majority of the study's subjects were female, white, over the age of 30 years, married, and earned a family income of at least \$50,000. The clients involved in the designated program for this study are representative of the typical client who joins a program that uses a liquid supplement as the primary method for weight loss.

The literature suggested that the variables most likely to predict obesity are gender, SES, and race. This literature-based profile primarily includes black females with limited income which is not representative of this study. More important is the fact that the literature consistently suggested that all dieters who lose weight are prone to relapse.

### **Importance of Significant Others**

Because most dieters rely heavily on others for encouragement, support from others is considered a very important factor to the success of a dieter. Dieters depend on their significant others as they struggle to lose and maintain weight. Spousal support, for example, may increase weight losses and help the dieter continue behaviors learned in treatment (Murphy et al., 1982). Dieters in this study not only named significant others, but admitted to lapsing after disagreements with them. Thus, a strained relationship

between the dieter and a "significant other" can hinder progress at any time period in the weight-loss process.

### **Probability of Relapse**

It is concluded that dieters who have high probabilities of relapse, even after repeated failures at maintenance on their own, fail to see the importance of continued contact with the program. This study confirmed researchers' (e.g., Brownell et al., 1986) postulates that at all times in the weight-loss process, there are certain situations that may pose threat to relapse because of their individually-defined "high-risk" nature.

Dieters at the beginning of treatment and one year posttreatment had the highest probability of relapse because of such factors as their perceived lack of support from others (interpersonal), inappropriate nighttime eating (environmental), and dichotomous thinking like, "I've blown my diet" (intrapersonal). None of the 30 dieters beginning treatment and none of the 26 relapsers at one year posttreatment had maintained contact with the weight-loss program responsible for their last weight loss.

Because of newly-learned behaviors, dieters at the end of treatment have a significantly lesser probability of relapse. Perceived support from others (interpersonal), a low-fat, nutrient-dense diet even at restaurants

(environmental), and positive self-talk (intrapersonal) are among the new behaviors conducive to success. The designated program has certain requirements (e.g., maintaining a diet diary, exercising, and attending group sessions); therefore, end-of-treatment subjects were able to respond favorably to the questionnaire items. Continuing to engage in these behaviors during post weight loss is the ultimate challenge of all dieters.

#### **Lack of Assertiveness**

It is dieters' lack of coping skills and assertiveness when faced with interpersonal conflict that continues to lead to overeating, thereby increasing the probability of weight gain. Dieters in this study tended to overeat when having conflict with others. Dieters typically avoid conflict or are easily persuaded to eat by others. This non-assertive behavior leads to overeating which "sedates" unpleasant emotions. Even dieters at the end of treatment exhibit poor coping skills by periodically lapsing in these situations.

#### **Lack of Planning**

Because of dieters' ongoing tendency to overeat in unstructured situations such as restaurants, it is concluded that lack of planning is what ultimately leads to lapses.

Consistent with research that there are certain stimulus factors that heighten the risk for lapses (Brownell et al., 1986), dieters in this study reported out-of-home eating (restaurants) and time of day (nighttime) as environmental cues to overeat. Dieters seem to comply with their diets under structured situations (e.g., the work setting or after work when they are preparing dinner and caring for the children). They "let their guard down," however, when dining in restaurants and late at night when other family members are asleep.

### **Poor Coping Skills**

Dieters' lapses as the result of their reactions to stressful events and emotions are due to a lack of coping skills needed to alleviate negative emotions and negative attitudes. Stress, both work related and stress in general, is the leading negative emotion that causes dieters to overeat. Instead of tackling stress, anger, and depression head on, dieters use food to relieve these emotions. At all three time periods, particularly before and after treatment, dieters do not directly deal with problems such as conflict and stress. Clients report that they are fully aware that overeating in these situations will lead to feeling worse afterwards. Eating food, though, serves to "sedate" their unpleasant emotions, at least initially.

## CONCLUSIONS ON THOUGHTS, FEELINGS, AND ACTIONS

### **Impulsivity**

The findings of this study clearly indicate that lapses are largely the result of dieters' tendency to be guided by negative feelings. Many obese overeaters are described as being impulsive (Ryden & Johnson, 1989) because they react to negative emotions by overeating. In this study, dieters' F-T-A behavior pattern at the beginning of treatment and one year posttreatment is indicative of their impulsivity and need for immediate gratification. After lapses, these dieters accentuate their negative feelings such as guilt and anger as they de-emphasize thoughts. While in treatment, they are able to abstain from reacting impulsively to negative emotions because they are "on a diet." After treatment, however, this study showed that dieters return to being guided by negative feelings such as stress and anger.

### **Temporary Behavior Change**

Because the dieters in this study had already regained large percentages of their lost weight at one year posttreatment, it is concluded that the behaviors acquired in treatment were abandoned within several months after weight loss. This is consistent with other findings that clients cease using behavioral strategies learned in

treatment (Goodrick & Foreyt, 1991). Exactly when the 26 weight-loss relapsers discontinued behaviors learned in treatment is unknown.

Dieters shift their attention by the end of treatment and are able to make adaptive changes. Their T-A-F pattern indicates that feelings no longer guide behavior. In fact, the intensity of feelings decreases considerably from the beginning to treatment to the end of treatment. Because feelings increase strongly at one year posttreatment, dieters' F-T-A behavior pattern resurfaces. The feelings of guilt and anger that are present among most dieters before, during, and after treatment are accentuated by weight-loss relapsers at one year posttreatment.

The highly-cognitive orientation at the end of treatment allows for the de-emphasis on food cravings and the negative emotions that follow lapses. This primary role that thinking takes at the end of treatment helps the dieter learn new behaviors to abstain from overeating. The dieter's strong thinking orientation in treatment is also due to their focus on losing weight, rehearsing newly-learned thoughts, and engaging in positive self-talk. This increase in thinking behavior results not only in fewer lapses but also in effective recovery from lapses when they occur. When lapses do occur, dieters' highly-cognitive approach at



the end of treatment allows for planning, perceiving hope in situations, and de-emphasizing lapses.

For the majority of dieters, the new emphasis on thinking fades after treatment. Thinking behavior increases considerably from the beginning of treatment to the end of treatment, yet it decreases to approximately the same level at one year posttreatment. Intensive weight-loss treatment helps dieters become aware of their overeating behaviors. After treatment, the majority of dieters do not invest the time and energy it takes to keep newly-learned thoughts active. After treatment, relapsers return to making internal, characterological attributions for the lapse.

Although acting behavior increases in intensity across all three times, actions are not predominant in any of the groups. Impulsive behavior of overeating is highly prevalent before and after treatment, yet in this study it is not mentioned by any dieter at the end of treatment. Actions in treatment are perceived by the dieter as requirements of being "on a diet." After treatment, the mixture of responses such as overeating, sleeping, and planning meals indicates dieters' awareness of those behaviors indicative of success. "I know what to do, I just can't do it" is a highly-frequent response heard by this researcher from weight-loss relapsers who are puzzled by their lack of productive action.

### Dichotomous Behavior

Because of a return to extreme, negative behaviors while abandoning newly-learned behaviors, it is concluded that dieters engage in dichotomous behaviors. Consistent with research (e.g., Brownell & Wadden, 1986; Chiauszi, 1991), dieters in this study exhibited "all-or-nothing" behavior. This tendency is most evident when dieters at the beginning of treatment are compared with dieters at one year posttreatment. Extreme, self-defeating thoughts such as "I can't change" and "I'm a failure" are present before and after treatment. For example, while "on a diet," dieters perceive hope in problematic situations, but after treatment there's a return to negative self-talk.

The F-T-A pattern that is representative of dieters before and after treatment is comprised of negative thoughts, feelings, and actions. The return of this pattern is reflective of how dieters, regardless of changes made in treatment, will have an almost-complete return to previous maladaptive behavior. It's as if the dieter believes something similar to "If I can't do it perfectly and completely, then I won't do it at all."

## CONCLUSIONS ON WEIGHT-LOSS MAINTAINERS

### Actions as Requirements

It is concluded that maintainers' strong emphasis on positive actions, regardless of negative feelings, is the primary approach that leads to effective recovery from lapses. The maintainers' A-T-F behavior pattern highlights the critical difference between them and the study's other dieters. Dieters' impulsivity and need for immediate gratification permeate throughout this study. The typical pattern of returning to an F-T-A orientation after treatment is inconsistent with the four weight-loss maintainers' behavior. Instead, positive actions such as exercising, dieting, and writing down mistakes are seen as requirements, not options. Actions are given top priority regardless of thoughts and feelings.

Similar to the other dieters in this study, maintainers find lapsing to be an emotionally-unpleasant experience as evidenced by their exclusively negative feelings such as guilt, anger, and disappointment. These negative feelings, however, do not hinder effective recovery from lapses. Instead, as one maintainer stated, "Going out of town doesn't mean I don't do my walking; it means I'll have to walk in unfamiliar places." Actions are seen as necessary elements in an already-busy-day's schedule.

### **Strong Self-efficacy**

It is concluded that strong self-efficacy, i.e., the belief that a person can respond effectively to a situation by using available skills (Bandura, 1977), is important to successful weight-loss maintenance. This conclusion was derived from the study's finding that maintainers use positive self-talk centering on faith in themselves and their ability to effectively recover from lapses. Among their exclusively positive thoughts, the four maintainers used statements implying belief in their abilities (e.g., "...I know I can"; "...but I can do better"; "I still have control and can do it"; "...I can do okay"). During and after treatment, these four maintainers had required themselves to engage in certain behaviors long enough to instill self-assurance in their ability to recover from lapses. Self-doubting statements that seem to enter maintainers' minds periodically are replaced with positive self-talk so as to increase confidence.

### **One Day at a Time**

It is concluded maintainers' daily planning and "rituals" are indicative of the concept "one day at a time." Each maintainer does something unique on a daily basis as a reminder that obesity is a long-term problem. The following examples were cited by the maintainers: Even though he

enjoys sugar and cream, one client drinks black coffee each morning to remind himself, "I'm different. Sugar and fat don't like me"; another client reads passages daily from a meditation book; each day, another client looks at his one remaining pair of "fat pants" that continue to hang in his closet; and another client purposely drinks coffee from her cup she earned in treatment.

Many persons who are recovering from addictions use the approach of "one day at a time." This outlook on maintenance has proven to be extremely effective across addictions because it allows the person to de-emphasize any mistakes made the previous day. Maintainers report that they approach each day with good intentions to recover from potential lapses. As a result, the probability of relapse becomes unlikely because a daily commitment to the recovery process is practiced.

### **Professional Contact**

It is concluded that follow-up care is yet another requirement among maintainers that effectively keeps them focused on actions. Consistent with research (e.g., Brownell, 1984; Collins, Rothblum, & Wilson, 1986), this study found follow-up treatment to be a method used by successful weight-loss maintainers. All four maintainers continue to remain involved in the designated weight-loss

program. One client attends a weekly maintenance group; two clients attend biweekly individual sessions with a licensed professional counselor; and one client comes biweekly to the designated program to weigh.

### **RECOMMENDATIONS**

Because of dieters' repeated failure at maintenance, the trend in our nation is leaning toward an almost-apathetic attitude as dieters struggle to accept their body size as it is. In order to restore this nation's faith in obesity treatment and weight-loss maintenance, we as researchers need to refocus attention to dieters' individual needs as opposed to suggesting and offering generic treatments that erroneously promise quick weight loss and long-term success.

The variables included in the Risk For Relapse Questionnaire need to be integrated into an intervention strategy based on individual needs rather than the needs of the weight-loss programs. To enhance our knowledge and improve existing weight-loss programs, several recommendations emerged from this study.

#### **Maintenance as a Requirement**

As with the four weight-loss maintainers in this study, follow-up care could keep dieters abreast of weight

fluctuations and corrective measures could be taken if necessary. Most weight-loss programs, including the one designated in this study, offer but do not require follow-up treatment. Based on the high relapse rates from both the literature and this study, follow-up treatment for at least one year should be a requirement, not an option. Clients will never see the necessity of a maintenance program if we as researchers and counselors continue to state its importance without making strong recommendations. The majority of clients who relapse report that their weight was insidiously regained as maintenance behaviors took a low priority and professional contacts were not maintained.

### **Spousal Involvement**

Including spouses and significant others in dieters' weight-loss programs should be encouraged to enhance empathy and support. Dieters' partners could be educated on a number of weight-related issues such as the universal struggles that encompass weight-loss efforts (e.g., uncontrollable physical food cravings). Supportive techniques could be learned to help the dieter, and this team approach could serve to decrease the isolation that many dieters feel.

### **Stress-reduction Techniques**

Learning to ward off stress could be obtained by requiring alternative behaviors such as exercising and relaxation techniques. Requiring alternative behaviors in addition to teaching specific stress-reduction techniques would address the "real" problem, i.e., clients' inability to cope effectively with stress.

Weight-loss programs need to incorporate research-suggested strategies that not only enhance weight loss but maintenance as well. These strategies should be requirements of the program with focus on building necessary skills for long-term weight loss. Because dieters overeat in times of stress, programs must teach techniques to alleviate stress. Programs need to realize that decreasing dieters' stress levels is imperative to long-term success. Statistics prove that focusing exclusively on weight loss has been the downfall of weight-loss programs because this merely centers on the "symptom" of obesity.

### **Problem-solving Skills**

Overeating could be substantially decreased or discontinued if programs taught assertiveness skills necessary for dieters to handle conflict, criticism, and others' temptations for them to eat. Abusing food must ultimately be eliminated from dieters' repertoire of ways to



deal with unpleasant events and emotions. Weight-loss programs need to have dieters practice problem-solving techniques to enhance their ability to cope in high-risk situations. Dieters need to learn alternative skills other than emotion-focused or escape-avoidance ways of coping, such as overeating, sleeping, and watching TV.

### **Record Keeping**

Dieters need to write down their plans for eating before the event and receive feedback from professionals until they become proficient at meal planning. This strategy must be a requirement of programs because research findings and clinical experience agree that writing down one's behavior, including mistakes, is highly effective at keeping dieters "honest" with themselves. If weight-loss programs emphasized teaching dieters to plan for daily routines as well as special events, then dieters may become more equipped at dining in restaurants and eating during holidays.

### **Relapse Prevention Training**

Weight-loss programs should address the relapse phenomenon itself. What's important is to have dieters learn that one lapse is not an indication of failure. Incorporating relapse prevention training into programs

would teach the predictable sequence of events related to relapse as well as build a strong repertoire of skills for avoiding and overcoming lapses. Such skills would include identifying likely situations in which lapses occur, practicing responses to lapses in protected conditions, and rehearsing cognitive strategies to overcome the negative effects of overeating. The "all-or-nothing" thinking style, which leads to perceiving doom in a single lapse, must be addressed so as to teach flexibility in one's diet.

#### **OBSERVATIONS FROM RESEARCHER'S CLINICAL EXPERIENCE**

The process dieters consistently go through is amazing! The typical dieter, who has lost and regained weight at least five times, enters treatment "desperate" and "out of control" vowing to do "anything" to lose weight. It's not uncommon to hear a dieter say, "I'm here to stay. I didn't follow up last time but I have to this time." The liquid diet is perceived as a means to gain control because of the elimination of food choices.

Considerable changes occur in treatment: Weight is lost; an optimistic attitude manifests; coping ability increases; relationships improve; exercise increases; and program attendance is excellent. A grand metamorphosis emerges as the dieter becomes more self-assured.

Six months later, and approximately 60 to 100 pounds lighter, the dieter exits treatment, again vowing to attend weight-loss maintenance sessions weekly. After approximately two months into maintenance, the typical dieter has missed half of the group or individual sessions. By the third month, the dieter is no longer attending the program. The counselor's or program director's telephone calls and letters do not have a bearing on having this dieter return, at least not until all lost weight is regained.

While in treatment, dieters' thought processes are maximized. They learn new behaviors conducive to success, but these behaviors (e.g., maintaining records, exercising, completing homework) are short lived because dieters practice these behaviors only to lose weight. Regardless of the program's objectives, the dieters' objective is to lose weight; the reinforcement is number of pounds lost according to the weight scales.

Even though they learn the value of certain behaviors on a cognitive level and agree that they make good sense, dieters many times fail to put these behaviors into action. The one behavior, however, that is consistently performed by all dieters is adhering to the program's diet plan. This is because dieters perceive reducing calories as a requirement to lose weight. The other behaviors, which are actually the

most important to insure long-term success, are perceived as options.

Once treatment is completed, the dieter sees the diet as being "over." Unfortunately, for the majority of dieters weight is insidiously regained because those behaviors that are mandatory to maintain lost weight (e.g., exercising, planning meals, coping effectively from lapses) are not perceived as long-term requirements.

Not only do most dieters discontinue behaviors learned in treatment, but they also return to negative, self-defeating behaviors. The diet is perceived as being "over," which results in a return to previous maladaptive behavior. The belief that one is either "on a diet" or "off a diet" was not directly examined in this study, but the researcher contends that it's this style of dichotomous thinking that leads dieters to abandon techniques after several lapses and weight gain.

Similar to other recovering persons across addictions, the four weight-loss maintainers in this study proved that actions must come first, regardless of occasional negative thoughts and feelings. Working with these weight-loss maintainers has provided further insight into their thinking styles. They consistently place weight-loss maintenance behaviors alongside other requirements: brushing one's teeth; paying taxes; working; stopping at red lights;

putting gasoline in the car. All of these behaviors are not actually necessary, but they are if one wants to maintain good health, earn money, and avoid legal problems.

Even when clients are in treatment, if we as researchers and counselors require behaviors necessary for maintenance, clients may perform these behaviors long enough to make them habitual. Again, at least one year of participation in a maintenance program should be a requirement of dieters. Certainly it's dieters' ultimate decision to participate, but it's our responsibility to act on what we discover from research and clinical observations.

In the future, weight-loss programs could eventually be referred to as weight-control programs with a de-emphasis on weight loss and a heavier emphasis on long-term management. Weight-loss maintenance could be perceived as the ultimate goal; treatment could be the training period in which to achieve this goal. The primary focus would be on developing and practicing, on a daily basis, thoughts, feelings, and actions conducive to effective recovery from obesity and compulsive overeating.

#### **FUTURE RESEARCH**

Other avenues of research emerged during this study which could contribute to the existing body of knowledge on obesity treatment and post weight loss. First, a larger

sample size, including more weight-loss maintainers, would make the recommendations in this study more powerful. Second, a comparison among dieters from a variety of weight-loss programs would reveal similarities and differences among dieters in the various programs. Third, intensive assessments of dieters during the first several months after treatment may provide insight into both the physiological and psychological processes that make early post weight loss so difficult. Fourth, more studies are needed on dieters in high-risk situations in order to delineate the typical process, if one exists, that occurs before, during, and after lapses. Fifth, TFA Systems™ could be applied to other eating disorders such as anorexia and bulimia to discover any similarities and differences between them and compulsive overeating.

TFA Systems™ was shown to be a method to access information from dieters at different times in the weight-loss process. By focusing on cognitive, affective, and behavioral dimensions, the totality of the dieter's experience after lapses was able to be examined. It was the focus on all aspects of behavior (thoughts, feelings, and actions) that allowed this study to pinpoint those elements that separated weight-loss maintainers from relapsers. An abundance of information could be learned from other client populations by applying such comprehensive assessments.

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## Appendix A

### RISK FOR RELAPSE QUESTIONNAIRE\*

\*Each question within this questionnaire is supported by research findings. The four major areas that assess risk for relapse (demographic, interpersonal, environmental, intrapersonal) correspond to research evidence in Chapter 2, Table 1.

#### Time period of interview

CIRCLE ONE

Beginning of treatment / End of treatment

One year posttreatment

Code Number \_\_\_\_\_

Date \_\_\_\_\_

Start \_\_\_\_\_

Finish \_\_\_\_\_

Complete according to client status

#### Beginning of treatment

Current weight \_\_\_\_\_ Moderately obese? yes/no

Number of previous weight-loss attempts \_\_\_\_\_

#### End of treatment

Current weight \_\_\_\_\_ Amount of weight lost \_\_\_\_\_

Number of previous weight-loss attempts \_\_\_\_\_

Moderately obese prior to weight loss? yes/no

#### One year posttreatment

Current weight \_\_\_\_\_

Moderately obese prior to weight loss? yes/no  
 Number of previous weight-loss attempts \_\_\_\_\_  
 Weight at the end of treatment \_\_\_\_\_  
 Difference \_\_\_\_\_ Percentage regained \_\_\_\_\_  
 Maintainer (less than 20% weight regain) \_\_\_\_\_  
 Relapser (more than 20% weight regain) \_\_\_\_\_

## I. Demographic Information

### A. Gender

1) Male \_\_\_\_\_ 2) Female \_\_\_\_\_

### B. Race

1) Caucasian \_\_\_\_\_ 2) Black \_\_\_\_\_ 3) Other \_\_\_\_\_

### C. Current Marital Status

1) Never Married \_\_\_\_\_ 2) Married \_\_\_\_\_  
 3) Separated \_\_\_\_\_ 4) Divorced \_\_\_\_\_  
 5) Widowed \_\_\_\_\_ 6) Other (living with someone) \_\_\_\_\_

D. Date of Birth \_\_\_\_\_

E. Current Family Income \_\_\_\_\_/year

## II. Interpersonal Factors

### A. Who is your primary source of support (partner)?

1) spouse \_\_\_\_\_ 4) sibling \_\_\_\_\_  
 2) parent \_\_\_\_\_ 5) friend \_\_\_\_\_  
 3) coworker \_\_\_\_\_ 6) other \_\_\_\_\_

B. How supportive is your partner (spouse, parent, etc.) with regard to your weight-loss efforts?

Not At All					Very				
1	2	3	4	5	6	7	8	9	10

C. How often do you and your partner argue with one another?

Never					Always				
1	2	3	4	5	6	7	8	9	10

D. How supportive are your friends with regard to your weight loss?

Not At All					Very				
1	2	3	4	5	6	7	8	9	10

E. How much contact have you had with a counselor, support group, or other professional specifically related to weight loss?

None					A Lot				
1	2	3	4	5	6	7	8	9	10

### III. Environmental Factors

A. Approximately how many minutes do you exercise in an average week?

1	2	3	4	5
0-15	16-30	31-45	46-60	61-75
6	7	8	9	10
76-90	91-105	106-120	121-135	136+



- B. To what extent have unexpected life events (e.g., loss of a job, death of a loved one) interfered with your weight-loss efforts?

Not At All	A Lot								
1	2	3	4	5	6	7	8	9	10

- C. How often do you eat high-fat foods?

Never	Always								
1	2	3	4	5	6	7	8	9	10

- D. How often do you eat at nighttime shortly before you go to sleep?

Never	Always								
1	2	3	4	5	6	7	8	9	10

- E. How often do you write down the number of calories you consume?

Never	Always								
1	2	3	4	5	6	7	8	9	10

- F. How often do you compulsively overeat (continue eating a large amount of calories even when you are full)?

Never	Always								
1	2	3	4	5	6	7	8	9	10

#### IV. Intrapersonal Factors

- A. How often do you eat when you are feeling bad (depressed, angry, stressed, or some other negative emotion)?

Never								Always	
1	2	3	4	5	6	7	8	9	10

- B. How often do you eat when you are feeling good (excited, happy, or some other positive emotion)?

Never								Always	
1	2	3	4	5	6	7	8	9	10

- C. How motivated are you with regard to your weight-loss/weight-loss maintenance efforts?

Not At All								A Lot	
1	2	3	4	5	6	7	8	9	10

- D. How often do you avoid problems and not handle them "face on"?

Never								Always	
1	2	3	4	5	6	7	8	9	10

- E. How often do you respond to overeating by saying to yourself "I've blown my diet"?

Never								Always	
1	2	3	4	5	6	7	8	9	10

- F. How often do you purposely place yourself in "high-risk" situations just to see if you can try not to overeat?

Never								Always	
1	2	3	4	5	6	7	8	9	10

- G. When you begin to regain weight and you realize that your overeating is getting out of hand, how difficult is it to seriously get "back on track?"

Not At All Difficult Very Difficult

---

1    2    3    4    5    6    7    8    9    10

- H. To what extent did you believe the statement, "I can do it on my own?"

Not At All Very Much

---

1    2    3    4    5    6    7    8    9    10

- I. To what extent do you believe that your problem of obesity will be "cured" once the weight is off?

Not At All Very Much

---

1    2    3    4    5    6    7    8    9    10

- J. How often do you act before you think (e.g., eat without thinking)?

Never Always

---

1    2    3    4    5    6    7    8    9    10

#### TFA CLINICAL ASSESSMENT

A "high-risk" situation is any situation that poses a threat to an individual's sense of control and increases the risk of potential relapse (Marlatt, 1985). High-risk situations can represent the following areas of your life: 1) Interpersonal - those situations that involve others such as family members or friends; 2) Environmental - those external events that are associated with overeating such as traveling; 3) Intrapersonal - those situations that overeating is the result of "personal" reasons such as stress or depression. The following are examples of high-risk situations:

Interpersonal

1. You and your partner have an argument and when he/she goes to bed you "raid the refrigerator."

Environmental

2. You're invited to a dinner banquet and you plan not to eat. When you arrive, however, you are so tempted by the array of food that you overeat.

Intrapersonal

3. You have a very stressful day at work, and as soon as you get home you eat.

Think of "high-risk" situations that consistently lead to overeating. If you are currently not overeating in any situations, think of "high-risk" situations that may pose threat to lapses. The "high-risk" situations should represent all three areas of risk factors.

Name a "high-risk" situation for each of the three areas that lead to a lapse. Think about your behavior after the lapse.

Interpersonal "high-risk" situation - \_\_\_\_\_

\_\_\_\_\_

Environmental "high-risk" situation - \_\_\_\_\_

\_\_\_\_\_

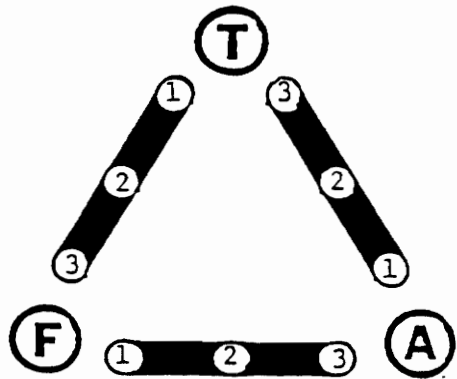
Intrapersonal "high-risk" situation - \_\_\_\_\_

\_\_\_\_\_

**A. Interpersonal**

After the "high-risk" situation you describe,  
were you more:

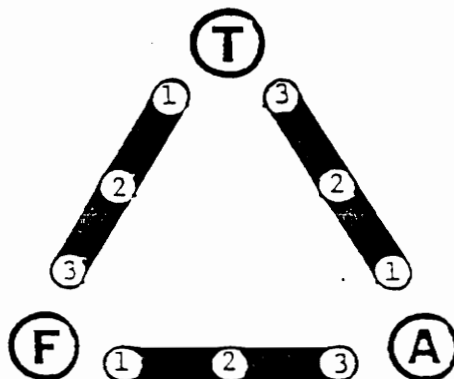
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Feeling or Acting or about in the middle?  
Acting or Thinking or about in the middle?



**B. Environmental**

After the "high-risk" situation you describe,  
were you more:

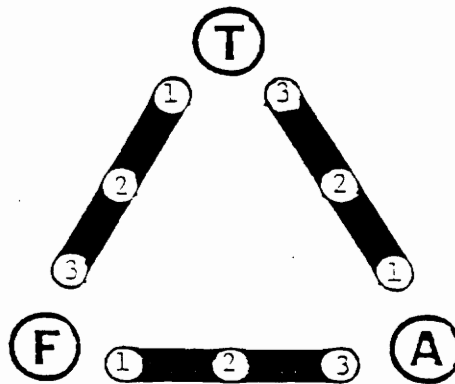
Thinking or Feeling or about in the middle?  
Feeling or Acting or about in the middle?  
Acting or Thinking or about in the middle?



### C. Intrapersonal

After the "high-risk" situation you describe,  
were you more:

Thinking or Feeling or about in the middle?  
Feeling or Acting or about in the middle?  
Acting or Thinking or about in the middle?



### Interview Observations

## Appendix B

### Informed Consent

#### Participant Agreement

You have been asked to voluntarily participate in a research project that focuses on your present behavior in situations that tend to influence you to overeat. The purpose of the study is to collect information about how dieters act in situations of overeating. You are under no obligation to participate in this study, nor will your participation influence your weight-loss treatment conditions. You may withdraw from the study at any point without prejudice.

Your participation will include an interview conducted by the researcher that should last no longer than one hour. You will be asked to complete a Risk For Relapse Questionnaire and answer questions about your behavior during three situations that you define as "high-risk" for overeating. This information is confidential and your name will not be used. Instead, you will be given a code number to protect your personal data.

The information generated from the study will be used as part of the researcher's data for a doctoral dissertation at Virginia Tech.

I, \_\_\_\_\_, have been asked to voluntarily participate in a research project being conducted by Gerald Hayes. I understand that this information is confidential and will not affect my status in my weight-loss treatment. I agree to be interviewed by the researcher which will include completing a questionnaire and answering questions about my behavior during three situations which typically lead to overeating. I further understand that the interviews will be recorded on audio tape by the researcher. With my signature below, I acknowledge that I understand and agree to the conditions of the study.

\_\_\_\_\_  
Participant

\_\_\_\_\_  
Date

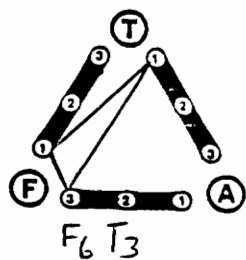
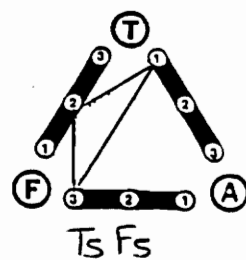
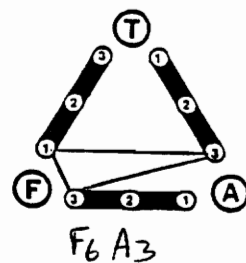
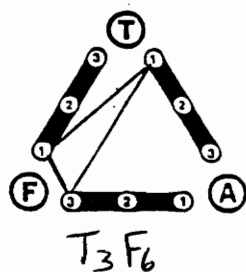
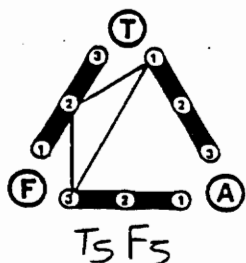
\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

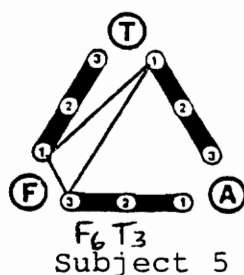
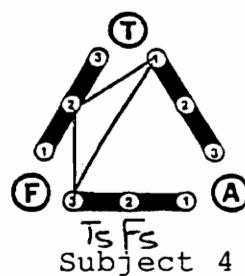
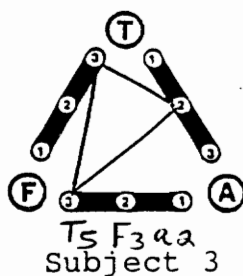
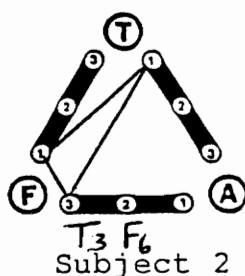
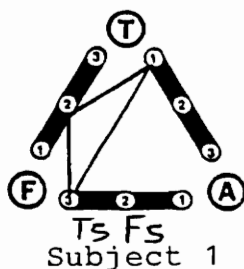
## Appendix C

### Group 1 TFA patterns on TFA Clinical Interview in three different high-risk situations

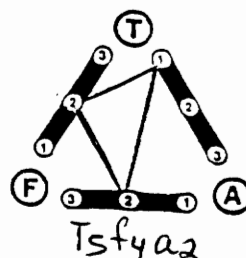
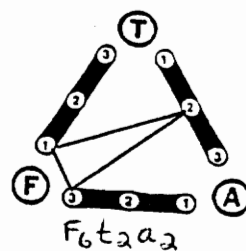
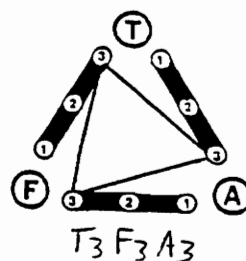
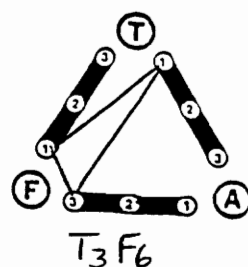
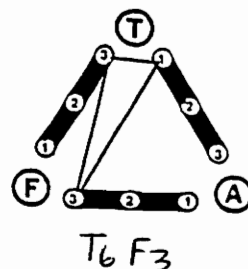
Interpersonal



Environmental

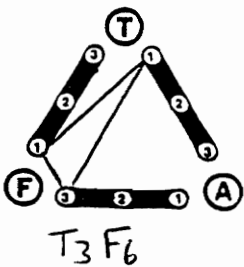
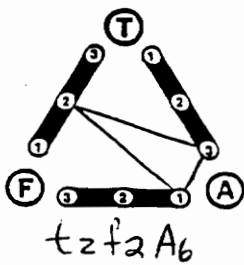
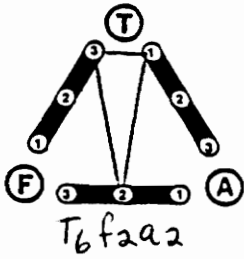
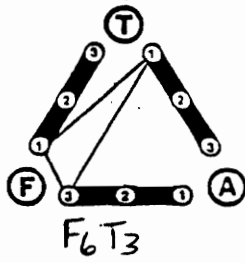
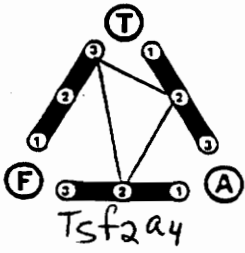


Intrapersonal

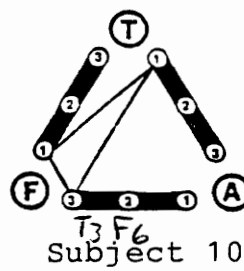
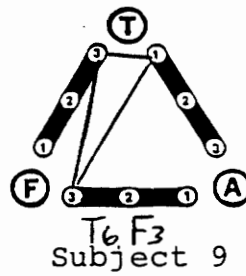
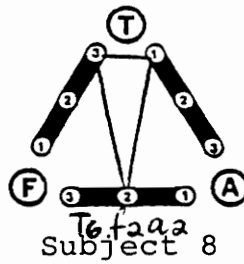
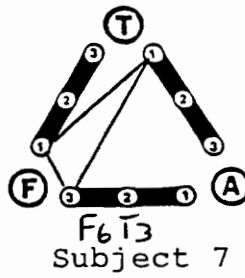
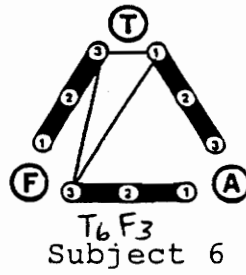




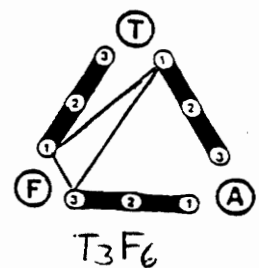
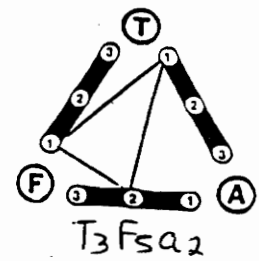
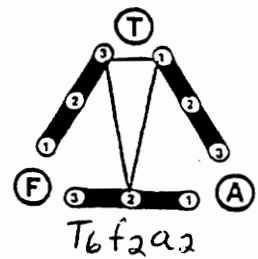
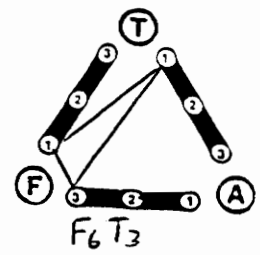
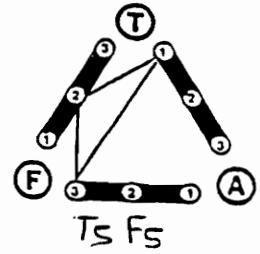
Interpersonal



Environmental



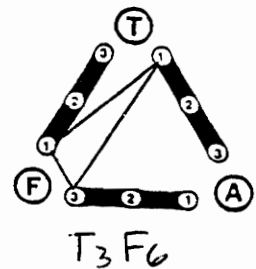
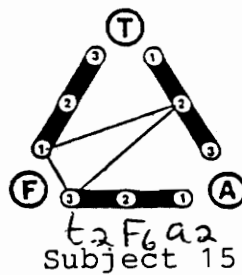
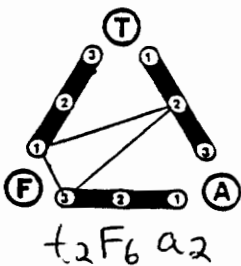
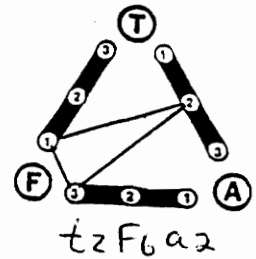
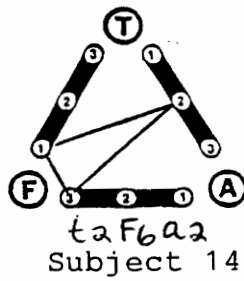
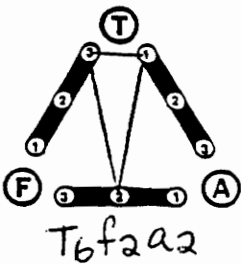
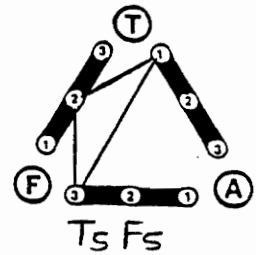
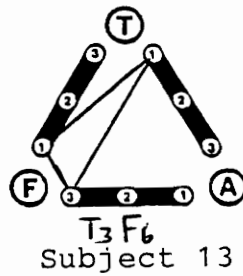
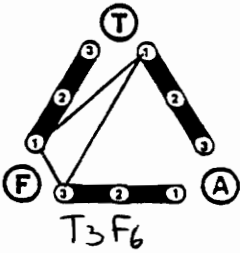
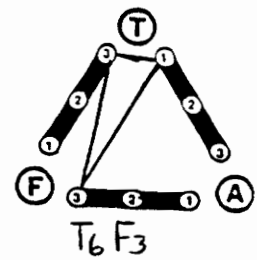
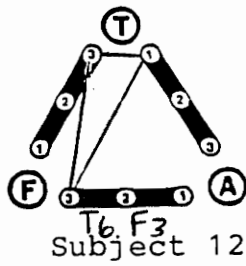
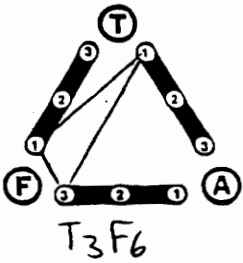
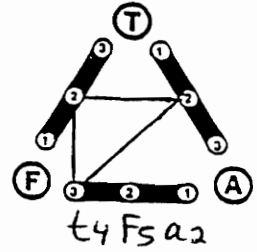
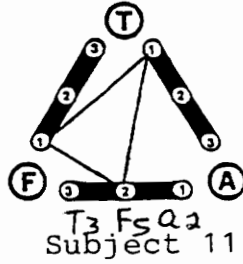
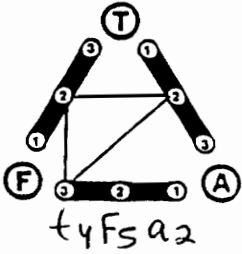
Intrapersonal



Interpersonal

Environmental

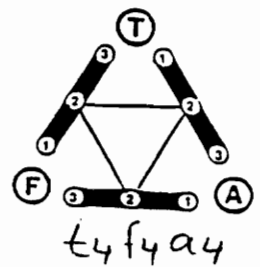
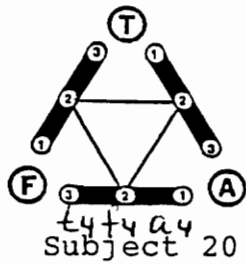
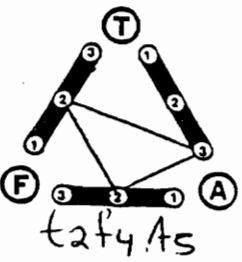
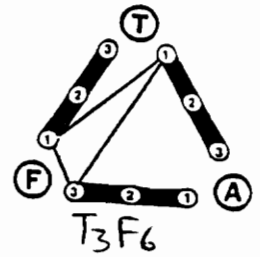
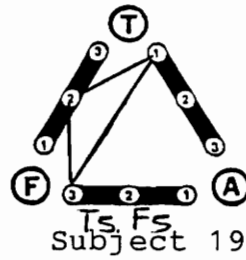
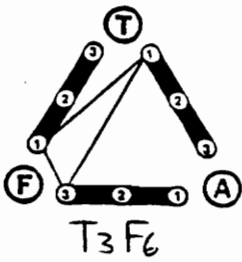
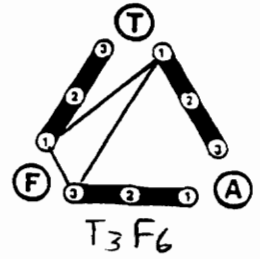
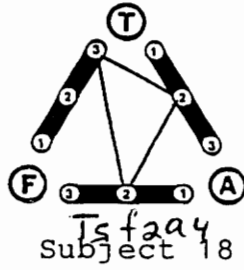
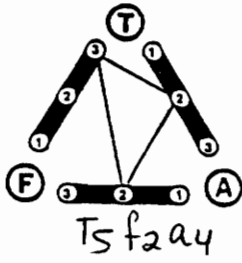
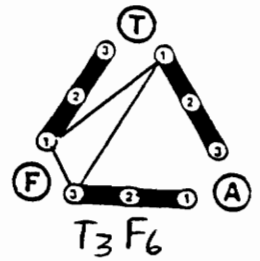
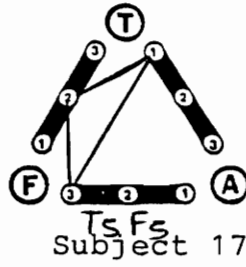
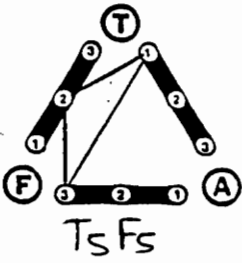
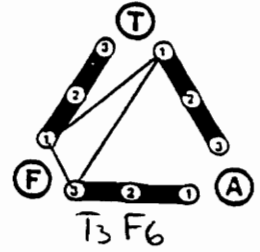
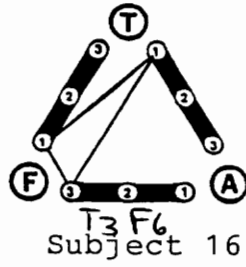
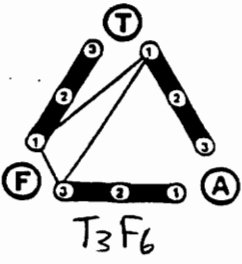
Intrapersonal



Interpersonal

Environmental

Intrapersonal





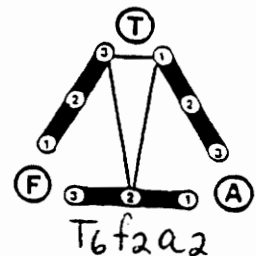
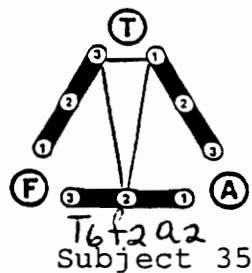
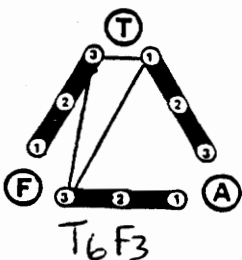
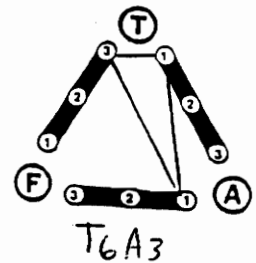
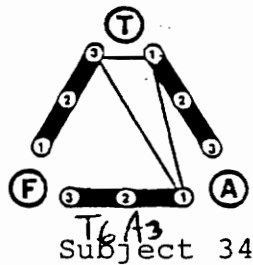
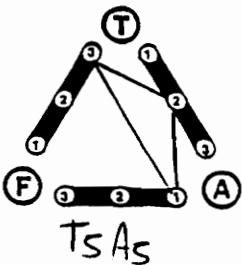
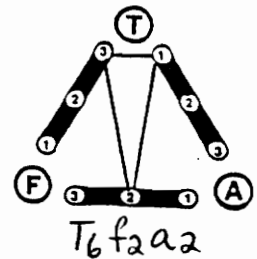
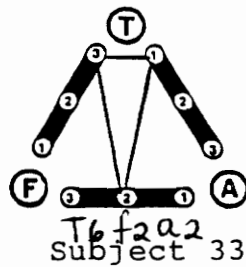
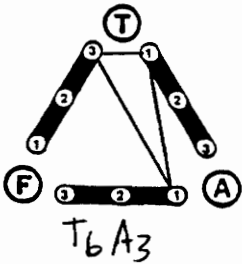
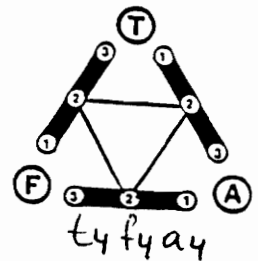
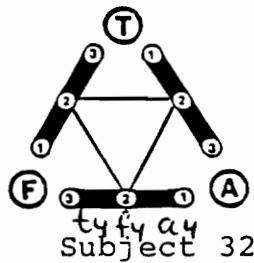
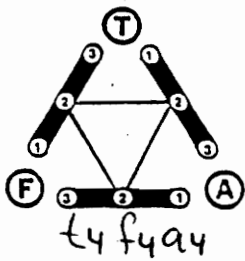
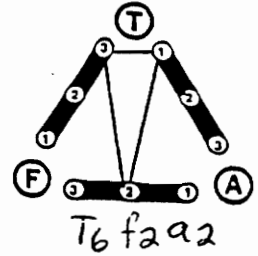
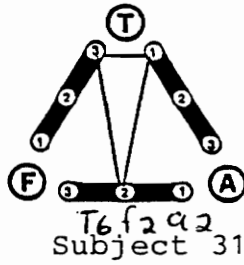
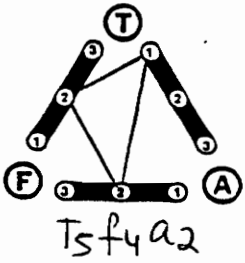


Group 2 TFA patterns on TFA Clinical Interview  
in three different high-risk situations

Interpersonal

Environmental

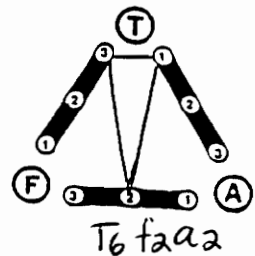
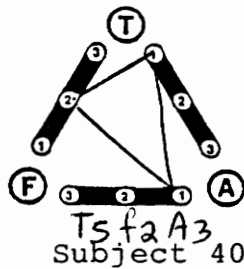
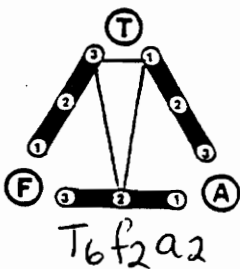
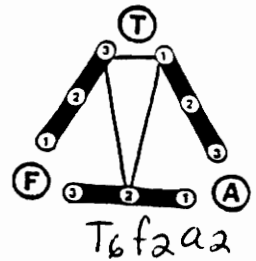
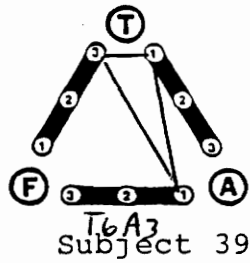
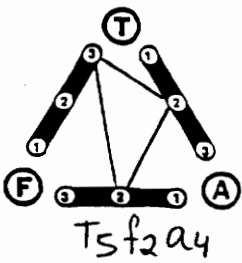
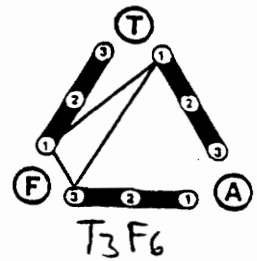
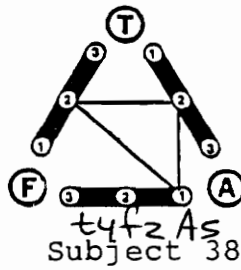
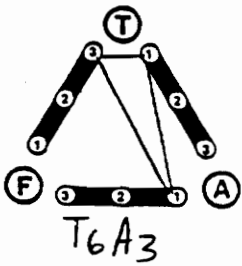
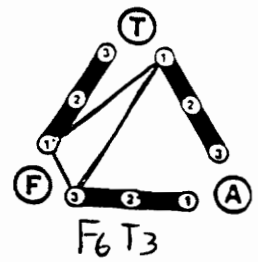
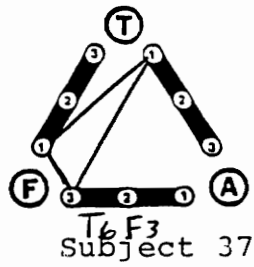
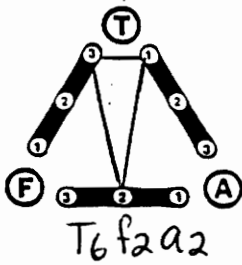
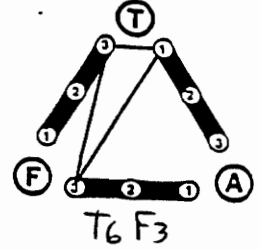
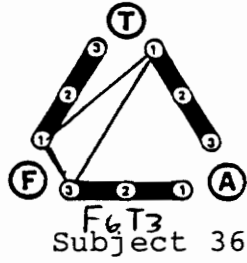
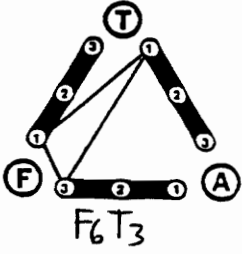
Intrapersonal



Interpersonal

Environmental

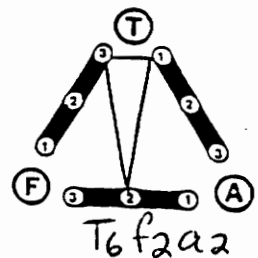
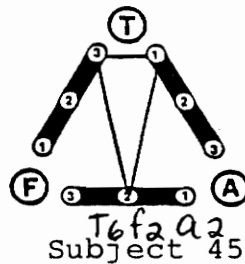
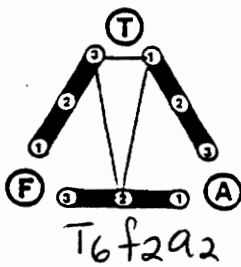
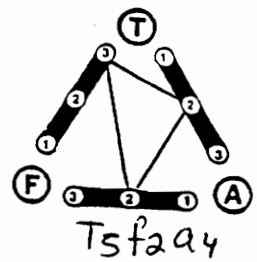
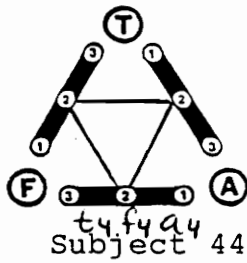
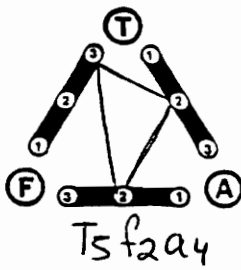
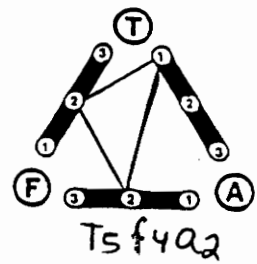
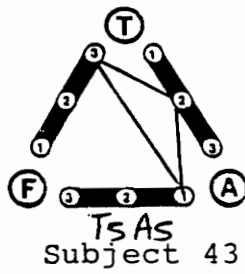
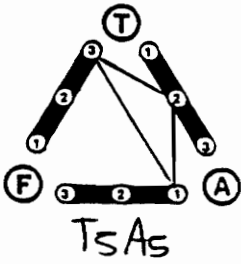
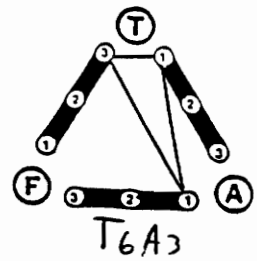
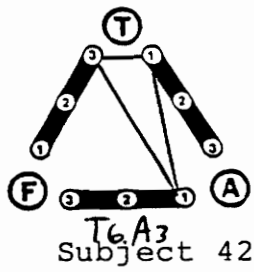
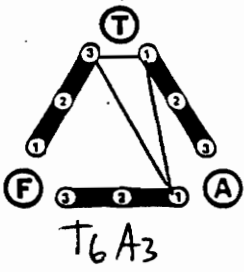
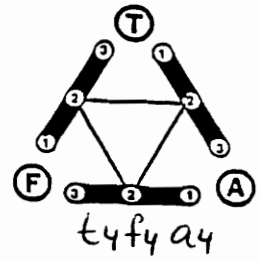
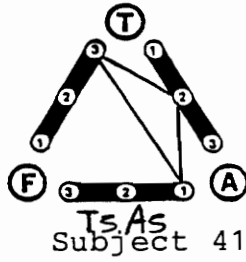
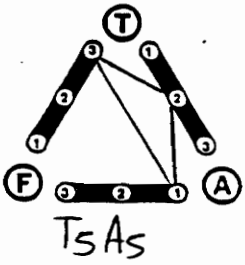
Intrapersonal



Interpersonal

Environmental

Intrapersonal

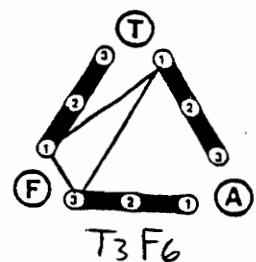
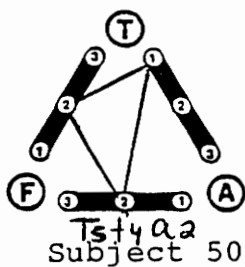
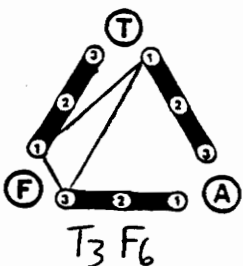
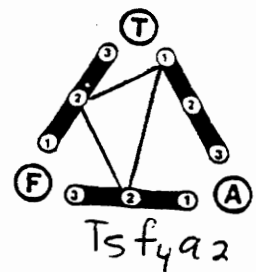
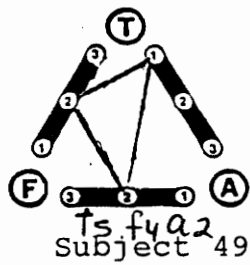
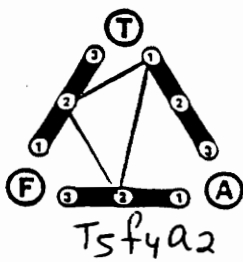
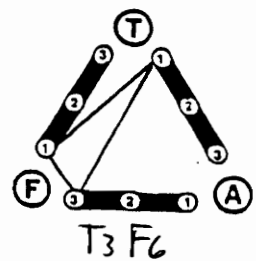
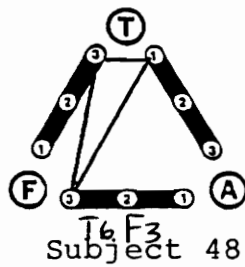
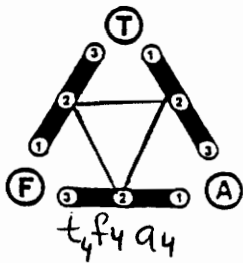
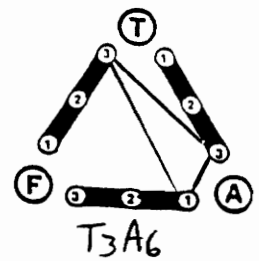
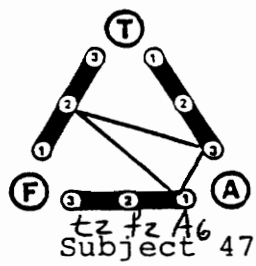
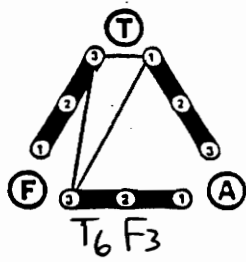
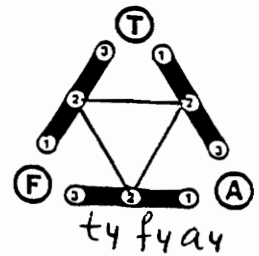
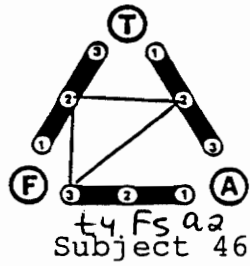
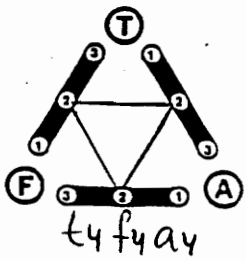




Interpersonal

Environmental

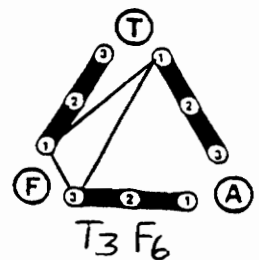
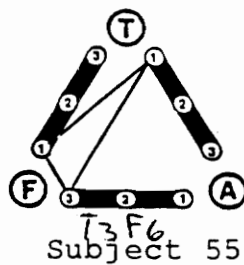
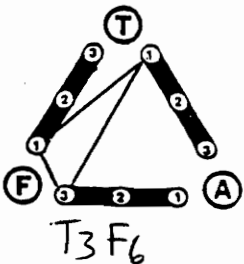
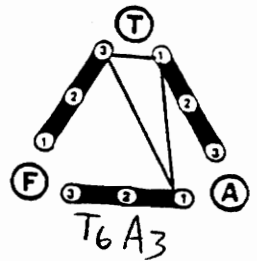
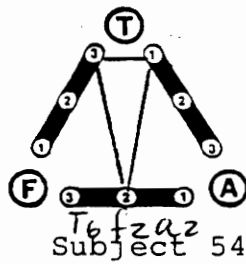
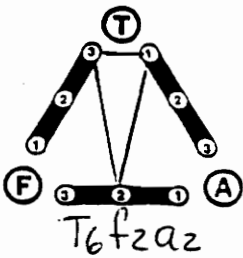
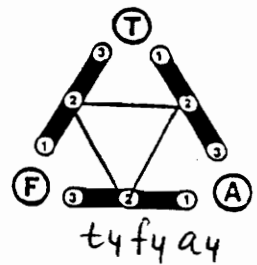
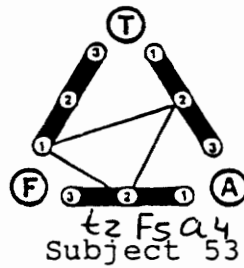
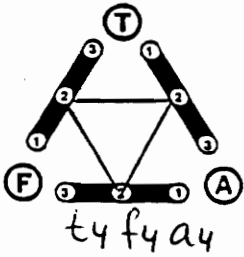
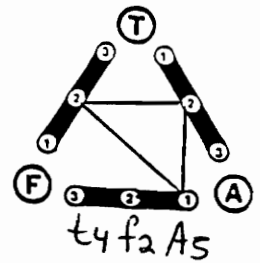
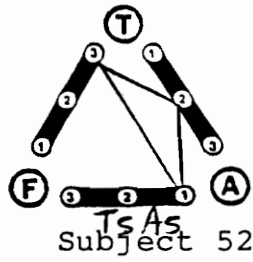
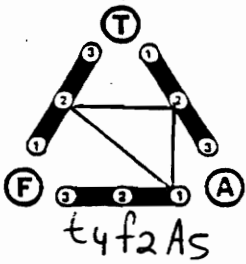
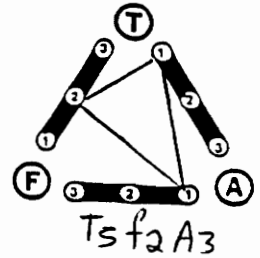
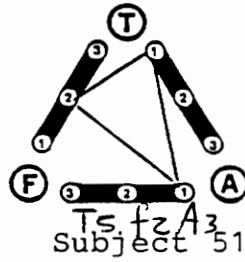
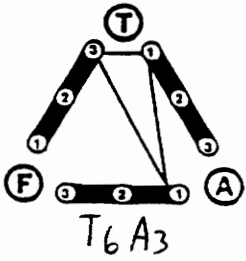
Intrapersonal



Interpersonal

Environmental

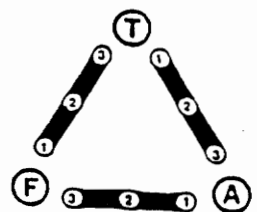
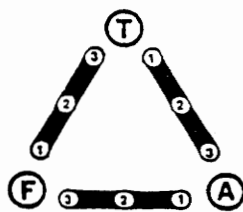
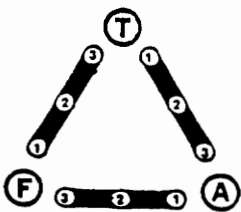
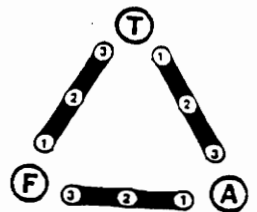
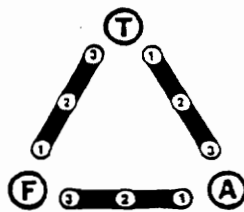
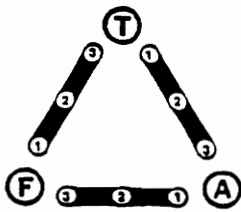
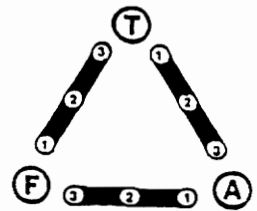
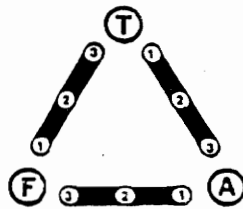
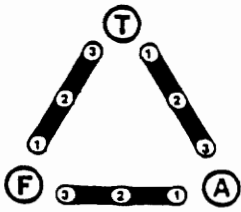
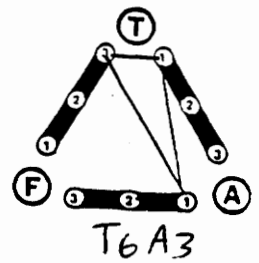
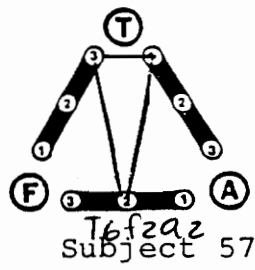
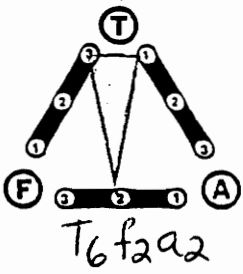
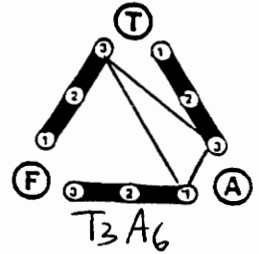
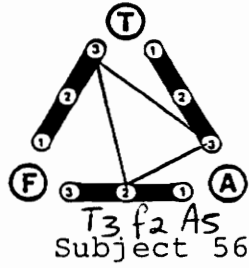
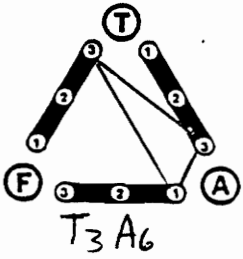
Intrapersonal



Interpersonal

Environmental

Intrapersonal

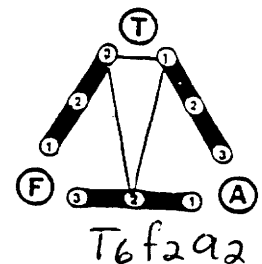
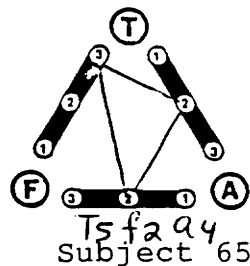
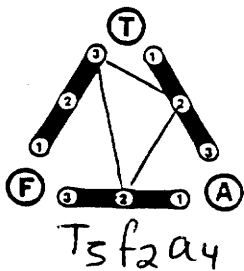
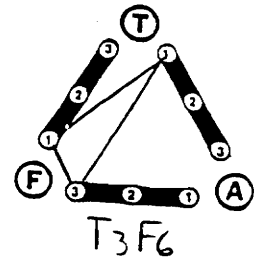
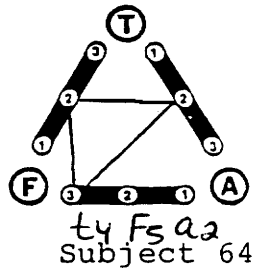
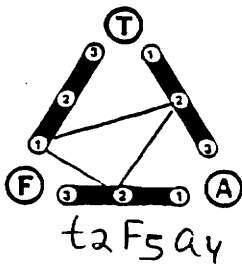
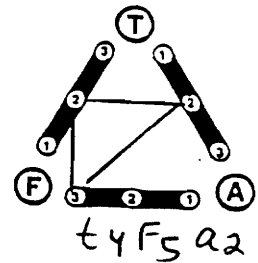
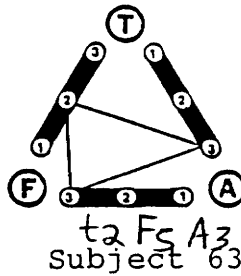
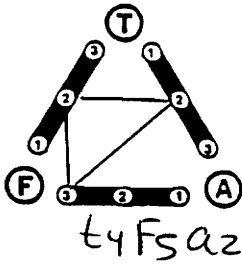
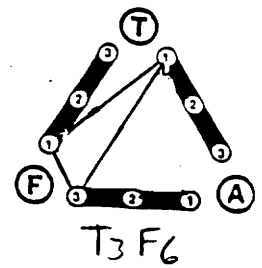
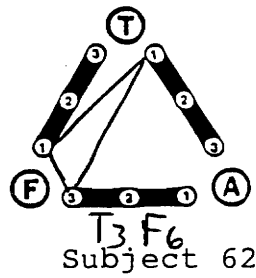
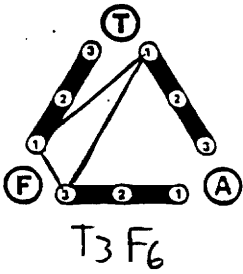
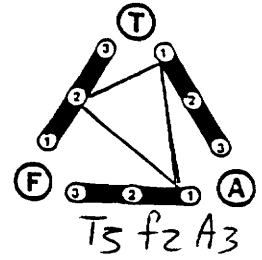
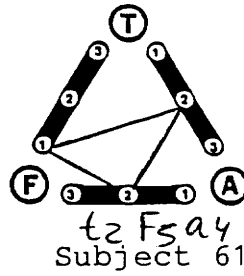
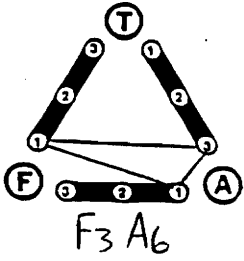


Group 3 TFA patterns on TFA Clinical Interview  
in three different high-risk situations

Interpersonal

Environmental

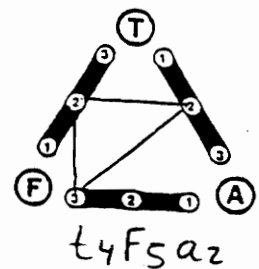
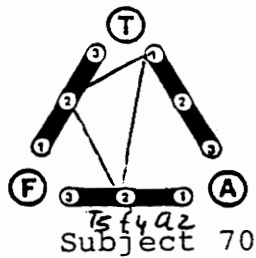
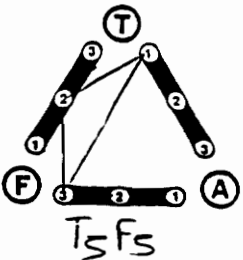
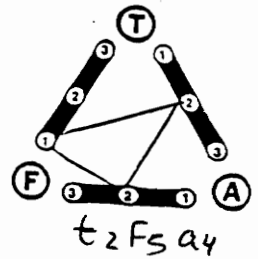
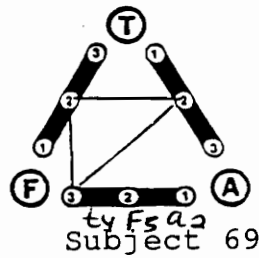
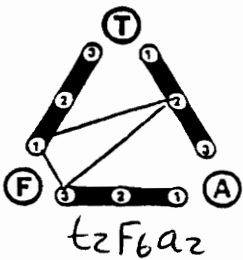
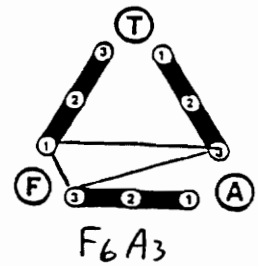
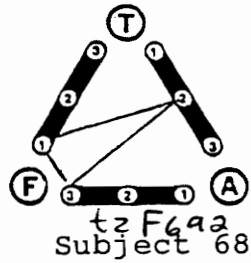
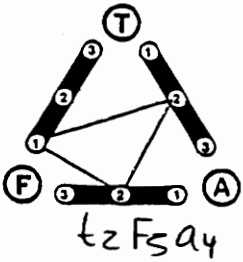
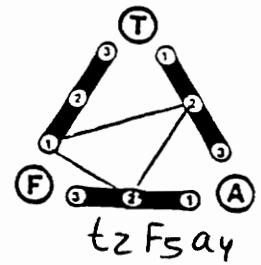
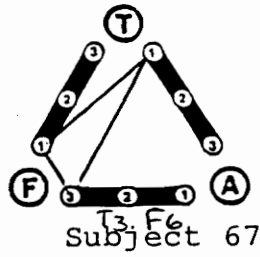
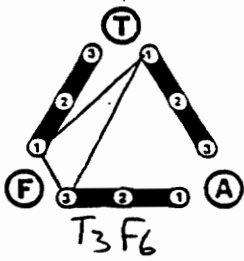
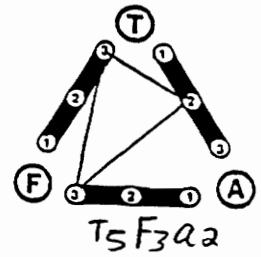
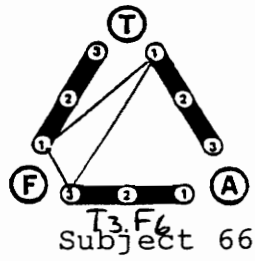
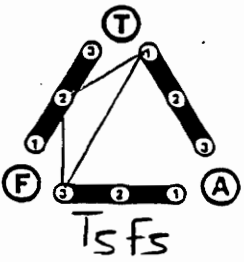
Intrapersonal



Interpersonal

Environmental

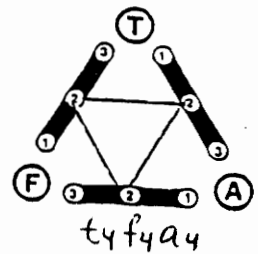
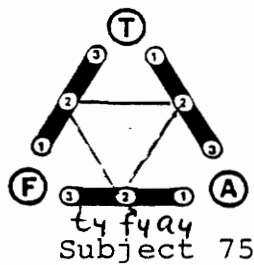
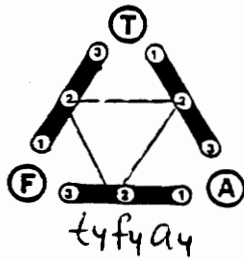
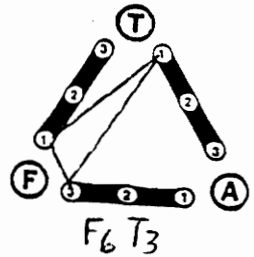
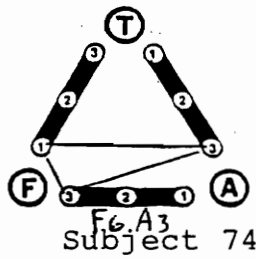
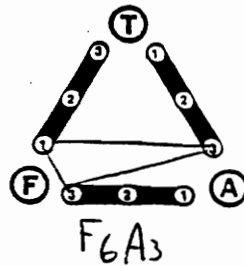
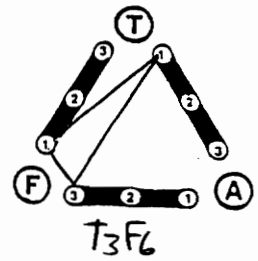
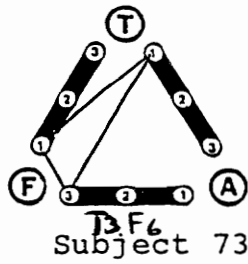
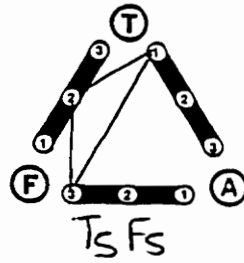
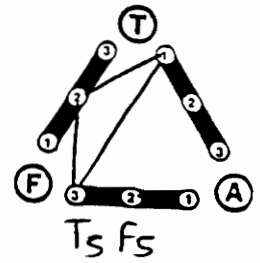
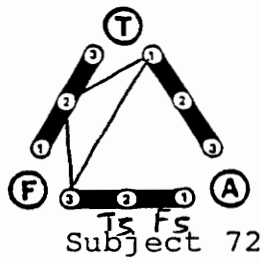
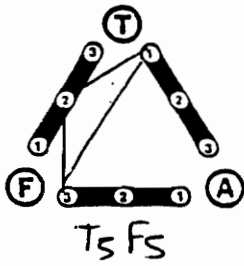
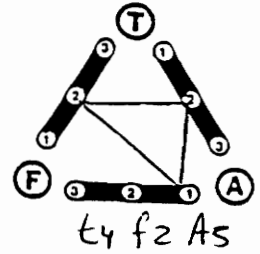
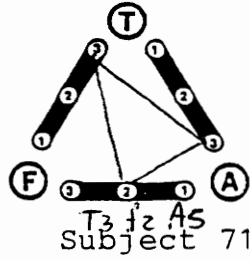
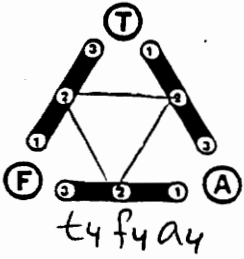
Intrapersonal



Interpersonal

Environmental

Intrapersonal

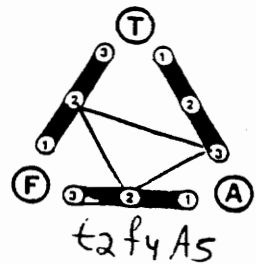
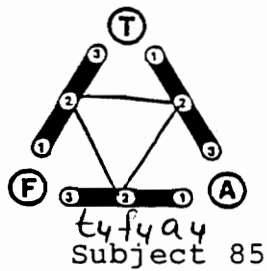
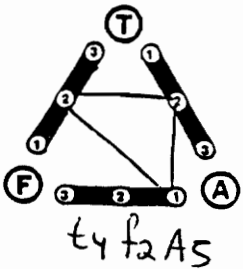
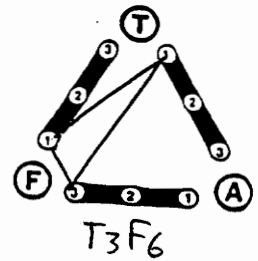
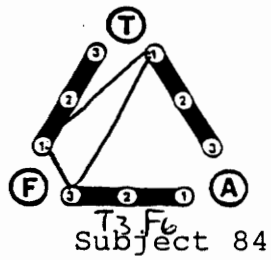
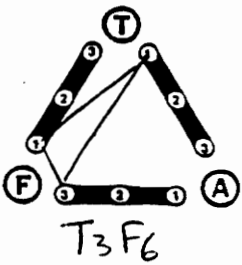
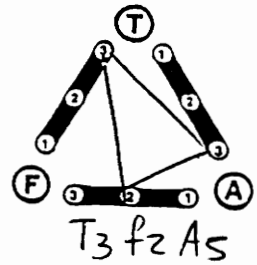
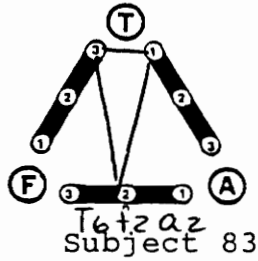
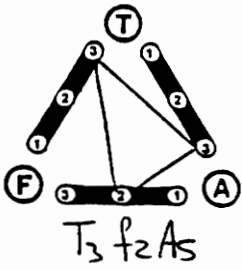
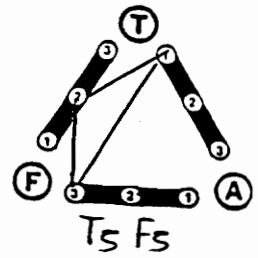
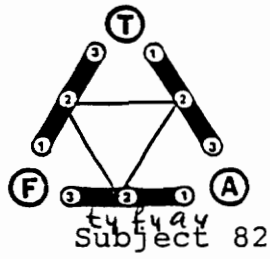
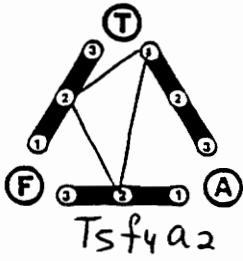
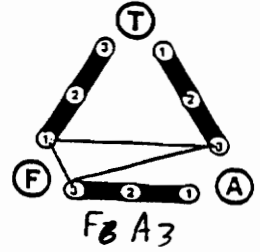
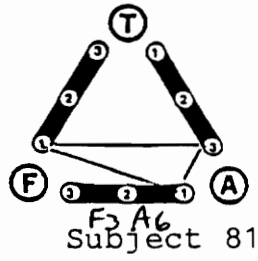
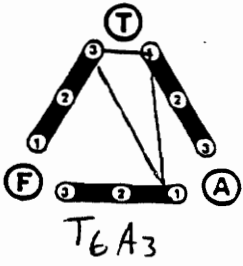




Interpersonal

Environmental

Intrapersonal

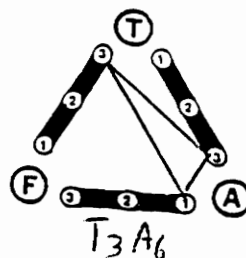
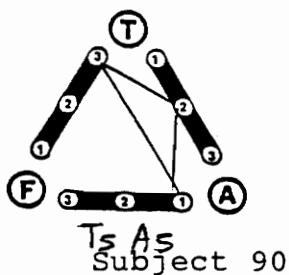
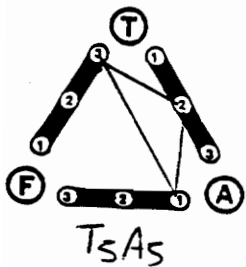
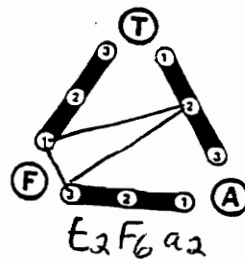
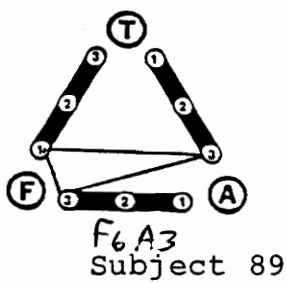
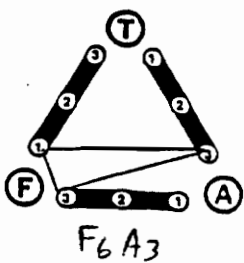
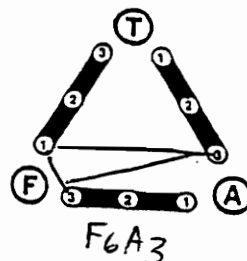
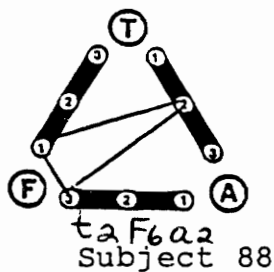
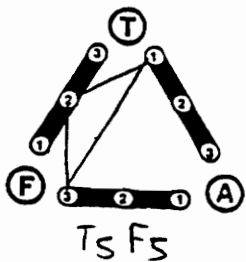
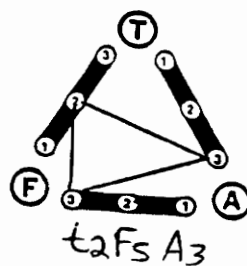
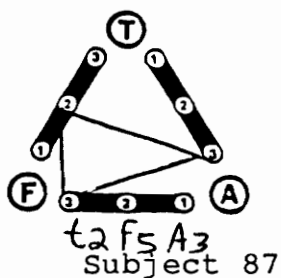
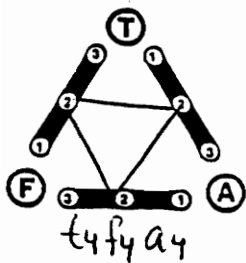
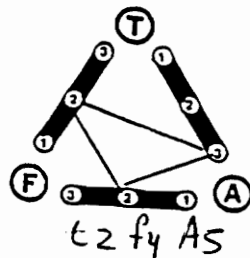
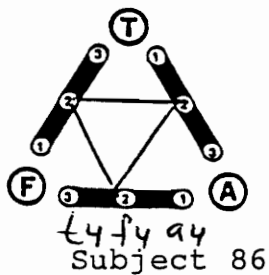
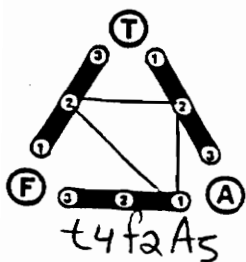




Interpersonal

Environmental

Intrapersonal



## Appendix D

### TFA Triangle Weighted Scores

Group 1 (Beginning of Treatment)

<u>Subject</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T	F	A	T	F	A	T	F	A
1	5	5	-	5	5	-	6	3	-
2	3	6	-	3	6	-	3	6	-
3	-	6	3	5	3	2	3	3	3
4	5	5	-	5	5	-	2	6	2
5	3	6	-	3	6	-	5	4	2
6	5	2	4	6	3	-	5	5	-
7	3	6	-	3	6	-	3	6	-
8	6	2	2	6	2	2	6	2	2
9	2	2	6	6	3	-	3	5	2
10	3	6	-	3	6	-	3	6	-
11	4	5	2	3	5	2	4	5	2
12	3	6	-	6	3	-	6	3	-
13	3	6	-	3	6	-	5	5	-
14	6	2	2	2	6	2	3	6	-
15	2	6	2	2	6	2	3	6	-
16	3	6	-	3	6	-	3	6	-
17	5	5	-	5	5	-	3	6	-
18	5	2	4	5	2	4	3	6	-
19	3	6	-	5	5	-	3	6	-
20	2	4	5	4	4	4	4	4	4
21	-	3	6	6	2	2	-	3	6
22	4	4	4	4	4	4	4	4	4
23	3	6	-	3	6	-	5	5	-
24	5	5	-	5	5	-	5	5	-
25	3	6	-	3	6	-	3	6	-
26	2	4	5	2	5	3	-	6	3
27	5	4	2	3	6	-	2	6	2
28	5	3	2	4	5	2	2	6	2
29	5	5	-	5	5	-	5	5	-
30	2	4	5	2	5	3	-	6	3
<b>Group Total</b>	<b>105</b>	<b>138</b>	<b>54</b>	<b>120</b>	<b>142</b>	<b>32</b>	<b>101</b>	<b>151</b>	<b>39</b>

## Group 2 (End of Treatment)

<u>Subject</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T	F	A	T	F	A	T	F	A
31	5	4	2	6	2	2	6	2	2
32	4	4	4	4	4	4	4	4	4
33	6	-	3	6	2	2	6	2	2
34	5	-	5	6	-	3	6	-	3
35	6	3	-	6	2	2	6	2	2
36	3	6	-	3	6	-	6	3	-
37	6	2	2	3	6	-	3	6	-
38	6	-	3	4	2	5	3	6	-
39	5	2	4	6	-	3	6	2	2
40	6	2	2	5	2	3	6	2	2
41	5	-	5	5	-	5	4	4	4
42	6	-	3	6	-	3	6	-	3
43	5	-	5	5	-	5	5	4	2
44	5	2	4	4	4	4	5	2	4
45	6	2	2	6	2	2	6	2	2
46	4	4	4	4	5	2	4	4	4
47	6	3	-	2	2	6	3	-	6
48	4	4	4	6	3	-	3	6	-
49	5	4	2	5	4	2	5	4	2
50	3	6	-	5	4	2	3	6	-
51	6	-	3	5	2	3	5	2	3
52	4	2	5	5	-	5	4	2	5
53	4	4	4	2	5	4	4	4	4
54	6	2	2	6	2	2	6	-	3
55	3	6	-	3	6	-	3	6	-
56	3	-	6	3	2	5	3	-	6
57	6	2	2	6	2	2	6	-	3
<b>Group Total</b>	133	64	76	127	69	76	127	75	68

## Group 3 (One Year Posttreatment)

<u>Subject</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T	F	A	T	F	A	T	F	A
61	-	3	6	2	5	4	5	2	3
62	3	6	-	3	6	-	3	6	-
63	4	5	2	2	5	3	4	5	2
64	2	5	4	4	5	2	3	6	-
65	5	2	4	5	2	4	6	2	2
66	5	5	-	3	6	-	5	3	2
67	3	6	-	3	6	-	2	5	4
68	2	5	4	2	6	2	-	6	3
69	2	6	2	4	5	2	2	5	4
70	5	5	-	5	4	2	4	5	2
71	4	4	4	3	2	5	4	2	5
72	5	5	-	5	5	-	5	5	-
73	5	5	-	3	6	-	3	6	-
74	-	6	3	-	6	3	3	6	-
75	4	4	4	4	4	4	4	4	4
76	4	4	4	4	2	5	5	5	-
77	5	5	-	4	4	4	4	4	4
78	5	-	5	3	-	6	5	-	5
79	5	4	2	4	4	4	4	4	4
80	5	4	2	5	4	2	5	5	-
81	6	-	3	-	3	6	-	6	3
82	5	4	2	4	4	4	5	5	-
83	3	2	5	6	2	2	3	2	5
84	3	6	-	3	6	-	3	6	-
85	4	2	5	4	4	4	2	4	5
86	4	2	5	4	4	4	2	4	5
87	4	4	4	2	5	3	2	5	3
88	5	5	-	2	6	2	-	6	3
89	-	6	3	-	6	3	2	6	2
90	5	-	5	5	-	5	3	-	6
<b>Group Total</b>	112	120	78	98	127	85	98	130	76

## Appendix E

### Bipolar Scores for High-risk Situations

Group 1 (Beginning of Treatment)

<u>Subject</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T-F	F-A	A-T	T-F	F-A	A-T	T-F	F-A	A-T
1	2-2	3-0	0-3	2-2	3-0	0-3	3-0	3-0	0-3
2	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
3	0-3	3-0	3-0	3-0	3-0	2-2	3-0	3-0	3-0
4	2-2	3-0	0-3	2-2	3-0	0-3	0-3	3-0	2-2
5	0-3	3-0	0-3	0-3	3-0	0-3	2-2	2-2	0-3
6	3-0	2-2	2-2	3-0	3-0	0-3	2-2	3-0	0-3
7	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
8	3-0	2-2	0-3	3-0	2-2	0-3	3-0	2-2	0-3
9	2-2	0-3	3-0	3-0	3-0	0-3	0-3	2-2	0-3
10	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
11	2-2	3-0	2-2	0-3	2-2	0-3	2-2	3-0	2-2
12	0-3	3-0	0-3	3-0	3-0	0-3	3-0	3-0	0-3
13	0-3	3-0	0-3	0-3	3-0	0-3	2-2	3-0	0-3
14	3-0	2-2	0-3	0-3	3-0	2-2	0-3	3-0	2-2
15	0-3	3-0	2-2	0-3	3-0	2-2	0-3	3-0	0-3
16	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
17	2-2	3-0	0-3	2-2	3-0	0-3	0-3	3-0	0-3
18	3-0	2-2	2-2	3-0	2-2	2-2	0-3	3-0	0-3
19	0-3	3-0	0-3	2-2	3-0	0-3	0-3	3-0	0-3
20	2-2	2-2	3-0	2-2	2-2	2-2	2-2	2-2	2-2
21	0-3	0-3	3-0	3-0	2-2	0-3	0-3	0-3	3-0
22	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2
23	0-3	3-0	0-3	0-3	3-0	0-3	2-2	3-0	0-3
24	2-2	3-0	0-3	2-2	3-0	0-3	2-2	3-0	0-3
25	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
26	2-2	2-2	3-0	2-2	3-0	3-0	0-3	3-0	3-0
27	2-2	2-2	0-3	0-3	3-0	0-3	0-3	3-0	2-2
28	3-0	3-0	2-2	2-2	3-0	2-2	0-3	3-0	2-2
29	2-2	3-0	0-3	2-2	3-0	0-3	2-2	3-0	0-3
30	<u>2-2</u>	<u>2-2</u>	<u>3-0</u>	<u>2-2</u>	<u>3-0</u>	<u>3-0</u>	<u>0-3</u>	<u>3-0</u>	<u>3-0</u>
<b>Total</b>	<b>39-63</b>	<b>75-24</b>	<b>30-66</b>	<b>43-58</b>	<b>84-12</b>	<b>20-77</b>	<b>30-69</b>	<b>82-13</b>	<b>26-71</b>

## Group 2 (End of Treatment)

<u>Subject</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T-F	F-A	A-T	T-F	F-A	A-T	T-F	F-A	A-T
31	2-2	2-2	0-3	3-0	2-2	0-3	3-0	2-2	0-3
32	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2
33	3-0	0-3	0-3	3-0	2-2	0-3	3-0	2-2	0-3
34	3-0	0-3	2-2	3-0	0-3	0-3	3-0	0-3	0-3
35	3-0	3-0	0-3	3-0	2-2	0-3	3-0	2-2	0-3
36	0-3	3-0	0-3	0-3	3-0	0-3	3-0	3-0	0-3
37	3-0	2-2	0-3	0-3	3-0	0-3	0-3	3-0	0-3
38	3-0	0-3	0-3	2-2	0-3	2-2	0-3	3-0	0-3
39	3-0	2-2	2-2	3-0	0-3	0-3	3-0	2-2	0-3
40	3-0	2-2	0-3	2-2	0-3	0-3	3-0	2-2	0-3
41	3-0	0-3	2-2	3-0	0-3	2-2	2-2	2-2	2-2
42	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3	0-3
43	3-0	0-3	2-2	3-0	0-3	2-2	2-2	2-2	0-3
44	3-0	2-2	2-2	2-2	2-2	2-2	3-0	2-2	2-2
45	3-0	2-2	0-3	3-0	2-2	0-3	3-0	2-2	0-3
46	2-2	2-2	2-2	2-2	3-0	2-2	2-2	2-2	2-2
47	3-0	3-0	0-3	2-2	0-3	3-0	3-0	0-3	3-0
48	2-2	2-2	2-2	3-0	3-0	0-3	0-3	3-0	0-3
49	2-2	2-2	0-3	2-2	2-2	0-3	2-2	2-2	0-3
50	0-3	3-0	0-3	2-2	2-2	0-3	0-3	3-0	0-3
51	3-0	0-3	0-3	2-2	0-3	0-3	2-2	0-3	0-3
52	2-2	0-3	2-2	3-0	0-3	2-2	2-2	0-3	2-2
53	2-2	2-2	2-2	0-3	2-2	2-2	2-2	2-2	2-2
54	3-0	2-2	0-3	3-0	2-2	0-3	3-0	0-3	0-3
55	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
56	3-0	0-3	3-0	3-0	2-2	3-0	3-0	0-3	3-0
57	<u>3-0</u>	<u>2-2</u>	<u>0-3</u>	<u>3-0</u>	<u>2-2</u>	<u>0-3</u>	<u>3-0</u>	<u>0-3</u>	<u>0-3</u>
<b>Total</b>	65-23	41-53	23-68	60-30	39-54	22-67	58-31	44-50	18-69

## Group 3 (One Year Posttreatment)

<u>Subject</u>	<u>Interpersonal</u>			<u>Environmental</u>			<u>Intrapersonal</u>		
	T-F	F-A	A-T	T-F	F-A	A-T	T-F	F-A	A-T
61	0-3	0-3	3-0	0-3	2-2	2-2	2-2	0-3	0-3
62	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
63	2-2	3-0	2-2	2-2	3-0	3-0	2-2	3-0	2-2
64	0-3	2-2	2-2	2-2	3-0	2-2	0-3	3-0	0-3
65	3-0	2-2	2-2	3-0	2-2	2-2	3-0	2-2	0-3
66	2-2	3-0	0-3	0-3	3-0	0-3	3-0	3-0	2-2
67	0-3	3-0	0-3	0-3	3-0	0-3	0-3	2-2	2-2
68	0-3	2-2	2-2	0-3	3-0	2-2	0-3	3-0	3-0
69	0-3	3-0	2-2	2-2	3-0	2-2	0-3	2-2	2-2
70	2-2	3-0	0-3	2-2	2-2	0-3	2-2	3-0	2-2
71	2-2	2-2	2-2	3-0	2-2	3-0	2-2	0-3	2-2
72	2-2	3-0	0-3	2-2	3-0	0-3	2-2	3-0	0-3
73	2-2	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
74	0-3	3-0	3-0	0-3	3-0	3-0	0-3	3-0	0-3
75	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2
76	2-2	2-2	2-2	2-2	0-3	2-2	2-2	3-0	0-3
77	2-2	3-0	0-3	2-2	2-2	2-2	2-2	2-2	2-2
78	3-0	0-3	2-2	3-0	0-3	3-0	3-0	0-3	2-2
79	2-2	2-2	0-3	2-2	2-2	2-2	2-2	2-2	2-2
80	2-2	2-2	0-3	2-2	2-2	0-3	2-2	3-0	0-3
81	3-0	0-3	0-3	0-3	0-3	3-0	0-3	3-0	3-0
82	2-2	2-2	0-3	2-2	2-2	2-2	2-2	3-0	0-3
83	3-0	2-2	3-0	3-0	2-2	0-3	3-0	2-2	3-0
84	0-3	3-0	0-3	0-3	3-0	0-3	0-3	3-0	0-3
85	2-2	0-3	2-2	2-2	2-2	2-2	2-2	2-2	3-0
86	2-2	0-3	2-2	2-2	2-2	2-2	2-2	2-2	3-0
87	2-2	2-2	2-2	2-2	3-0	3-0	2-2	3-0	3-0
88	2-2	3-0	0-3	0-3	3-0	2-2	0-3	3-0	3-0
89	0-3	3-0	3-0	0-3	3-0	3-0	0-3	3-0	2-2
90	<u>3-0</u>	<u>0-3</u>	<u>2-2</u>	<u>3-0</u>	<u>0-3</u>	<u>2-2</u>	<u>3-0</u>	<u>0-3</u>	<u>3-0</u>
Total	47-59	61-40	38-65	43-61	66-36	49-55	43-61	69-30	46-55

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