FAMILY SYSTEMS VARIABLES AS PREDICTORS OF EATING STYLES AND BODY MASS INDEX

by

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ABSTRACT

Obesity is a heterogeneous condition that can seriously impact the degree to which one is healthy and socially accepted. It is generally considered to be greatly influenced by genetic factors. Given that we cannot change our genes, it was the purpose of this study to try to further understand the variables related to obesity that are not genetic. Specifically, the purpose of this study was to investigate the impact of certain family systems variables and childhood feeding practices on Body Mass Index (BMI). The family variables of interest were intergenerational intimacy, intergenerational differentiation, intergenerational triangulation, spousal intimacy, spousal differentiation, nuclear family triangulation, and the relationship between eating and sex. The childhood feeding variables of interest related to the use of food as a reward, coercive use of food, parental disagreement about feeding, the expression of love through food, and feeding enmeshment (i.e., the perception of parental overcontrol in feeding). Because certain eating styles have been found to be related to obesity, further investigation revolved around the impact of the family and feeding variables on eating styles. The eating styles of interest were restrained eating, emotional eating, external eating, and binge eating. The variables were studied by surveying employees of a school system in southwest Virginia.

Body Mass Index was found to be significantly positively correlated with feeding enmeshment, weight as a means of sexual avoidance, and eating in response to a lack of physical affection. Restrained eating was not found to be significantly related to any

family or childhood feeding variable. Emotional eating, external eating, and binge eating were all significantly negatively correlated with intergenerational intimacy, spousal differentiation, and nuclear family triangulation health, significantly positively correlated with sexual avoidance and deprivation of affection. In addition, emotional eating and binge eating were significantly negatively correlated with intergenerational differentiation, while external eating and binge eating were significantly negatively correlated with spousal intimacy. Emotional eating was positively correlated with all of the childhood feeding practices, while external eating and binge eating were correlated with four and three, respectively, of the feeding practices. While there were many significant correlational findings, there were few significant coefficients in the hierarchical regression analyses, presumably because of the high intercorrelations between the predictor variables (the family and feeding variables).

In general, it can be said that family functioning and childhood feeding behaviors are relevant to overeating and overweight. The family and feeding variables are better predictors of eating styles that can lead to obesity than of obesity per se. High levels of dysfunction in families and frequent use of food in non-nutritional ways are associated with high levels of emotional, external, and binge eating. These findings may have implications for physicians and therapists.

DEDICATION

This dissertation is dedicated to
Dr. Chester L. Foy and Betty R. Foy

with thanks for
being academic role models,
emotional support,
financial support,
housecleaning,
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CHAPTER I
Introduction

Obesity, by some, is thought to be "the major nutritional disorder in the U.S." (Simopoulos, 1988, p.1). It is considered to be a heterogeneous disorder that involves both environmental and genetic components. Obesity has been defined in several ways; the most commonly used measures are the Body Mass Index (BMI), percentage of body fat, and percentage of overweight. Percentage of overweight is calculated by comparing one's weight to some reference weight such as the midpoint of an acceptable weight range set by the Metropolitan Life Insurance Company (1959; 1983). The Metropolitan Life Insurance Company specifies degrees of obesity in this manner: 10% over the relative weight is considered overweight; 20%- 40% over is mild obesity; 40%-100% is moderate obesity; greater than 100% is morbid obesity. Obesity is generally considered to occur when an individual is more than 20% over the relative weight (Bray, 1978).

Estimates of obesity prevalence vary greatly because obesity and overweight are defined differently in various studies. For example, the National Center for Health Statistics (NCHS) defined overweight as having a BMI greater than or equal to the 85th percentile of a group of 20-29 year olds studied in 1976 through 1980. The 85th percentile equates with a BMI of 28 for men and a BMI of 34 for women. Additionally, they defined severe overweight as having a BMI greater than or equal to the 95th percentile of the same sample. The 95th percentile equates with a BMI of 32 for men and a BMI of 42 for women. According to this set of criteria, the NCHS estimate that 32.6 million adult Americans are overweight and 11.5 are severely overweight (VanItallie & Abraham, l985). These definitions have been criticized because they are based on normative data rather than data regarding morbidity and mortality (Simpoulos, 1988). In

other words, perhaps it is not as helpful to compare ourselves to what is average as it is to compare ourselves to what is healthy. In contrast to the NCHS criteria, Hubert, Feinleib, McNamara, and Castelli (1983) have used criteria relating obesity to morbidity and mortality from cardiovascular disease. In doing so, they point out that 80% of men and 70% of women in the sample of more than 5000 that they reviewed are above their desirable weight range (BMI of 24.4). More recently Kuczmarski, Flegal, Campbell, and Johnson (1994) have reported age-adjusted obesity prevalence rates of 31.3% for men and 34.7% for women. In the literature, there are variations in the descriptions (e.g., "obese", "overweight") and measurements (e.g., height/weight ratio) related to weight; BMI is used in the current study and is considered to be a continuous variable.

To better understand the prevalence of obesity several demographic variables must be considered: gender, age, socioeconomic status, ethnicity, and culture. Obesity is more common among women than men (Najjar & Rowland, 1987; Stunkard, l985). In one national (U.S.) population-based survey 24% of men and 27% of women were found to be overweight (BMI>27.8 for men; BMI>27.3 for women); further, 8% of men and 11% of women were found to be severely overweight (BMI>31.1 for men; BMI>32.3 for women) (Najjar & Rowland, 1987). Obesity increases with age up to a certain point, the 40's for men and the late 50's or early 60's for women (Simopoulos, 1981). Stunkard (1985) found obesity rates 2-3 times higher in 64 year olds than in 20 year olds. In a classic study by Goldblatt, Moore, and Stunkard (1965) obesity was found to be negatively correlated with socioeconomic status, with the correlation especially strong for women. Obesity was found to be 6 times more common in low SES women than in high SES women. More recently, Rand and Kuldau (1990) have found a similar negative

correlation for white women. Black women have been found to have a higher incidence of obesity (44%) than white women (25%), and Hispanic women fall in between. Rates are similar between men in these three racial groups (Centers for Disease Control, 1989). Others (Kuczmarski et al., 1994; Rand & Kuldau, 1990) have also found a strong race/gender interaction. Rand and Kuldau (1990) have reported the following rates of overweight: 46% of black women, 28% of black men, 18% of white women, and 16% of white men. When comparing Jews, Catholics, and Protestants, Jews have the highest rates of obesity while Protestants have the lowest. Among Protestants, Baptists have the highest rates of the denominations studied while Lutherans and Episcopalians have the lowest (Stunkard, l975).

Culture has significantly influenced obesity rates for centuries. In primitive times fat in women was valued highly. A woman who would now be considered grossly obese was then considered to be an "ideal of feminity and fertility" (Powers, 1988, p. 27). By the Renaissance period grossly obese women were no longer the standard but large women were still symbols of beauty. In the United States there has been a trend in recent decades to value unusually thin women as beauty ideals. Garner and Garfinkel (1980) found centerfold models and Miss America Pageant winners to be increasingly thin from 1959 to 1978, and pageant winners since 1970 were found to weigh less than the other contestants. With this thin ideal has come a variety of social stigmas against overweight people. Obese people are stereotyped as mentally and physically slow, lazy, and gluttonous (Allon, 1982). Mattox and Liederman (1969) found that more than half of all doctors and medical students studied described obese people as awkward, weak-willed, and ugly. While it is no longer politically correct to make fun of most minorities, it

continues to be popular on television to ridicule fat people on a regular basis (Coleman, 1993). Fat is frequently equated with committing some social offense or sin. There is less stigma on "good" fat people who condemn their fat and attempt to diet; more stigma is placed on "bad" fat people who neither apologize for themselves nor attempt to amend their wrong (Allon, 1975). Obese people are often subjected to unwarranted criticism from strangers because they consider the obese person to be irresponsible rather than suffering from a medical condition (Crandall, 1994). People with conservative ideological beliefs (e.g., "The Protestant Work Ethic") that emphasize personal responsibility and control over one's own life are more likely to dislike overweight people. This positive correlation between conservative beliefs and dislike of the overweight is found equally among normal weight and overweight people (Crandall, 1994; Quinn & Crocker, 1998). The negative reactions to and social consequences of obesity are worse for women and occur at lower levels of fat (Fallon, 1990). This makes sense when one considers that a man's natural body size and shape are similar to the ideal male form, while the ideal female form is quite different from a woman's natural size and shape (Rodin, Silberstein, & Striegel-Moore, 1985). The ideal form is thinner and more hour-glass shaped than what is natural for women. This unreasonable standard has led to an increase in chronic dieting among women, even those who are not overweight (Gray, 1977; Miller, Coffman, & Linke, 1980; Rodin et al., 1985). Coupled with this trend is the trend in women (white women in particular) to view themselves as overweight when they are not or to view themselves as an acceptable weight only when they are underweight (Gray, 1977; Miller, et al., 1980; Mintz & Betz, 1986; Rand & Kuldau, 1990; Thompson & Thompson, 1986).

In response to the stigmas against fat people, a number of organizations have sprung up to promote societal acceptance of overweight persons such as the National Association to Aid Fat Americans (NAAFA) and The Fat Liberation Front (Schwartz, 1984). There are also publications that promote self-acceptance among fat people (e.g., BBW, a magazine whose title stands for Big Beautiful Women). With this increasing trend and the hope of stigma eradication, it would be tempting to believe obesity research is no longer relevant if obesity is no longer a "problem". Unfortunately, there remains a significant problem with obesity in that it is irrefutably connected to a variety of health problems. Hubert et al. (1983) have described obesity as an independent, long-term predictor of coronary heart disease, especially for women and young people. Obesity has been linked consistently to coronary heart disease (Drenick, Gurunanjappa, Seltzer, & Johnson, 1980; Halmi, 1988; Hubert, et al., 1983; Lew & Garfinkel, 1979; Rabkin, Mathewson, & Hsu, 1977; Rimm, Werner, VanYserloo, & Berstein, 1975; Society of Actuaries, 1979), diabetes mellitus (Drenick et al., 1980; Rimm, et al., 1975; Society of Actuaries, 1979), gall bladder disease (Lew & Garfinkel, 1979; Rimm, et al., 1975; Society of Actuaries, 1979), hypertension (Drenick, et al.,1980; Halmi, 1988; Rimm, et al., 1975; Society of Actuaries, 1979), cancer (Halmi, 1988; Society of Actuaries, 1979), and osteoarthritis (Drenick, et al., 1980; Halmi, 1988; Rimm, et al., 1975). While a BMI of less han 25 is not associated with increased mortality, the increase in mortality with a BMI over 25 is almost linear for both sexes (Hubert, 1983; Lew & Garfinkel, 1979; Rhoads & Kagan, 1983; Society of Actuaries, 1979). Keys (1980) found that a nonsmoker with a BMI of 30-35 is equal to a normal weight smoker in terms of mortality. Morbidly obese young people have a mortality rate 1200% greater than

average (Drenick, et al., 1980). Mortality and morbidity rates are higher in obese people even from accidents and surgery (Hodge & Maseelall, 1993). Bray (1989) and Stunkard (1985) have suggested that there may be no significant health risk with mild obesity, but they agree that there is a definite risk with moderate to severe obesity. The National Institutes of Health Nutrition Coordinating Committee and Centers for Disease Control reviewed obesity research and concluded "in the United States...below average weights tend to be associated with the greatest longevity, if such weights are not associated with concurrent illness or a significant medical impairment. Overweight persons tend to die sooner than average-weight persons, particularly those who are overweight at younger ages." (Simopoulos & VanItallie, 1984). All things considered, it seems wise to try to better understand the causes of obesity in order to decrease a variety of health problems that are associated with increased mortality rates.

Obesity research has traditionally focused on the obese person's physiological, psychological, and behavioral traits. Given that traditional diets based on individuals' eating behaviors have proven to be ineffective on a long-term basis (Garner & Wooley, 1991), it seems appropriate to move beyond the individual to look at the problem of obesity in a larger context. It has only been in the last 20 years or so that attention has been given to the family environment of weight disordered people. Research in this area has revolved around patients with anorexia or bulimia nervosa. Most research that has pertained to obesity in the family has targeted children and adolescents.

The purpose of this study was to add to and clarify existing research by investigating the extent to which variations in BMI and eating styles can be explained by certain family systems variables. Specifically, the purpose was to examine intimacy and

differentiation in families of origin and procreation, triangulation in the families of origin and procreation, and sexual attitudes in adult women. A further purpose was to determine if these family variables are a better predictor of BMI or of certain types of problematic eating that often lead to obesity (dietary restraint, emotional eating, external eating, and binge eating). An investigation of this sort could help to identify some of the underlying factors associated with overeating and overweight; in turn, more holistic treatment approaches could be developed to better serve women seeking help.

CHAPTER II
Literature Review

Introduction

In order to best understand the problems of obesity and overeating, they must be examined in a holistic manner. Historically, obesity and overeating have been studied by the medical community to look for the genetic and psychiatric causes of the problems. In addition, behaviorists and psychoanalysts have attempted to understand and explain obesity. This chapter will provide an overview of the contributions of these fields of research. More recently, and to a lesser degree, obesity and eating problems have been studied from a family systems perspective. In that the purpose of this study was to address family variables, a more extensive review of the family literature is provided. Researchers have used various measures and descriptions related to weight; these differences are reflected in the various terms used in the literature review. The chapter further includes a description of the conceptual framework of this study.

Genetic Research

Physiological theories regarding obesity have been numerous and diverse for many years. It has been generally accepted for decades that obesity runs in families, but it has been unclear if this is due to learned behavior or due to genetic factors. The search for genetic causality probably began as early as the 1920's with Davenport's (1923) study of the inheritance of body build. Twin studies and adoption studies have provided the best evidence for genetic causality. Several twin studies have shown identical twins to have more fat similarity than fraternal twins, even when the identical twins were not reared together and the fraternal twins were (Brooke, Huntley, & Slack, l975; Shields, l962; Stunkard, Foch, & Hrubec, l986). When pairs of identical twins were subjected to

feeding and exercise changes, the fat/weight changes within pairs were significantly similar. Within-pair variation was significantly less than between-pair variation (Poehlman, et al., l986). In a study of 540 adult adoptees, no relationship was found between adoptees and their adoptive parents in terms of BMI. A significant positive correlation was found between adoptees and their biological parents (Stunkard, et al., l986). Stunkard (l985) reports that the child of two obese parents has an 80% chance of being obese; the child of one obese parent has a 40% chance of being obese, and the child with no obese parents has a 10% chance of being obese. At this point, it is almost universally accepted that genetics play a significant role in the development of obesity. What is not agreed upon is the degree to which genetics are significant and how, specifically, genetics are influential. Bouchard (1994) has reported the range of variance explained by genetic factors to be between 10% and 80%, with adoption studies suggesting lower variances and twin studies suggesting higher variances. The specific manner in which genetic make-up determines obesity is not known. Some theories involve inherited food preferences, metabolic rate, and the possibility of a recessive gene for overweight (reviewed by Bouchard, 1997). Other theories involve abnormal levels of brain chemicals such as serotonin, dopamine, and beta-endorphins (reviewed by Ericsson, Poston, & Foreyt, l996).

Behavioral Research

In the past several decades, behaviorists have attempted to identify specific situations, behaviors, and environments that are associated with obesity. One behavioral theory of obesity that was popular in the 1960's and 1970's was Schachter's (1968) Internal-External Model of Obesity. According to this model, eating patterns of obese

people are dependent upon external cues from the environment rather than internal physiological cues. External cues could include times of day, places, sights and smells (Cabanac & Duclaux, 1970; Schachter, 1971). This model was consistent with earlier research. For example, it was found that people who were surrounded by food at work were prone to eat more than controls (Freed, 1947). Later studies on externality suggested that the Internal-External Model of Obesity had outlived its usefulness; obese people were found to be no more externally oriented than normal weight people (Rodin, 1978, 1981).

Generally speaking, behaviorists view overeating as a learned behavior and thus consider obesity to be a "learned disorder" (Foster & Wadden, 1994, p. 149) subject to the principles of conditioning. Eating is viewed as positive reinforcement, and there is evidence to suggest that food is a more powerful positive reinforcer for obese people than for non-obese people (Gilbert & Hagen, 1980; Pangborn & Simone, 1958). Eating is also negative reinforcement in that it serves to reduce hunger and certain negative emotions (Powers, 1980). Further, Krieshok and Karpowitz (1988) suggest that the behaviorist's concept of punishment is relevant to eating behaviors. They suggest that perhaps there are "aversive stimuli that inhibit eating in people of normal weight -- stimuli that are either nonexistent or weak in overweight people. Also, people of normal weight may eat only until the negative stimulus of hunger is eliminated" (p. 328). They speculate that because obese people are fast eaters (Dodd, Birky, & Stalling, 1976; LeBow, Goldberg, & Collins, 1977), they may be able to eat more than normal weight people before aversive stimuli (e.g., feeling too full) are present (Krieshok & Karpowitz, 1988). At this point, however, most agree that little difference has been found between obese and non-

obese people in terms of speed and quantity of food intake (Rodin, Schrank, & Striegel-Moore, 1989) or in taste preferences (Drewnowski, 1986). It has been concluded that "studies on attitudes, behaviors, food preferences, and eating styles have generally failed to establish consistent differences between obese individuals and lean controls" (Drewnowski, 1996, p. 294). The possible exception to these conclusions is in regard to quantity of intake. Even though there have been no consistent, significant differences in the food/calorie intakes of obese and non-obese people (see reviews by Katahn & McMinn, 1990; Shah & Jeffrey, 1991), Faith, Johnson, and Allison (1997) point out that these studies have usually relied on self-report measures to quantify intake and there is ample evidence at this point to suggest that self-report measures of food intake are unreliable (Drougas, Reed, & Hill, 1992; Heitmann,1993; Lichtman, Pisarska, Berman, Pestone, Dowling, Offenbacher, Heisel, Heshka, Matthews, & Heymsfield, 1992; Livingstone, Prentice, Strain, Coward, Black, Barker, McKenna, & Whitehead, 1990; Schoeller, 1990). Faith et al. (1997, p. 425) conclude "self-report measures substantially underestimate food intake among obese individuals, leaving little question that obese persons eat more than their nonobese counterparts on average".

Psychological Research

The condition of obesity has been the subject of much speculation from a psychological standpoint. Early psychoanalysts (e.g., Bychowski, 1950) viewed overeating as a symptom of a psychosexual fixation at the oral stage of development that leads to weakened ego strength. Obesity has also been considered to be the result of using food as an emotional defense (Hamberger, 1951; Hockman,1938). This concept of eating in response to emotion was not new; philosopher David Hume had referred to

stress-induced eating in the 18th century. Further, the Germans used the word "kummerspeck", interpreted "fat of sorrow", to describe women's weight gain during World War I (Bruch, 1973). Behaviorist researchers also found a positive correlation between obesity and feelings of stress or worry (Freed, 1947; Mullins, 1958). While the concept of "emotional eating" was not new, it was not given much attention until the psychoanalytic community's development of the Psychosomatic Model of Obesity (PMO) in the 1950's (Kaplan & Kaplan, 1957). According to the PMO, obese people overeat in response to emotional distress, while non-obese people use alternative coping strategies. Examples of emotional discomforts that trigger overeating include: depression, anxiety, guilt, frustration, hostility, insecurity, and feelings of being unloved or deprived (Kaplan & Kaplan, 1957; Slochower, 1983). Further, when an inadequate maternal bond has left an individual insecure, eating is viewed as means of comforting oneself (Bruch, 1957; Goodsitt, 1983). This theory suggests that "obese persons have a limited capacity for self-soothing and overeat in order to reproduce a sensorimotor representation of the mother and her soothing activities, which have not been properly internalized" (Glucksman, 1989, p. 153).

The fact that people eat in response to stress or emotion is widely accepted. What remains in question is to what extent obese and nonobese people differ in the amount and frequency of emotional eating. Advocates of the PMO predict that obese people will eat more in response to stress or negative affect than normal weight people. This hypothesis has been tested in a wide variety of experimental settings. Subjects would be exposed to either a high stress or low stress situation and then were allowed access to food. Greeno and Wing (1994) reviewed these experimental studies and concluded that there is only

minimal support for the PMO's premise. They found no consistent pattern of overeating in response to laboratory stressors. This lack of consistent findings does not necessarily discredit the PMO. It has been suggested that certain preconditions may be necessary to make the connection between overeating and negative affect. For example, Slochower (1983) suggests that a *diffuse* anxiety state must be present; exposure to stress is not necessarily a sufficient trigger for overeating, but exposure to stress that subjects cannot control is a sufficient trigger. Another proposed precondition for overeating is the presence of an effective ego threat (Heatherton, Herman, & Polivy, 1991). It also seems reasonable to conclude that experimental designs are limited by the subjects' lack of privacy. There is much anecdotal information to suggest that certain types of overeating (e.g., binge eating) are usually secretive behaviors (Chernin, 1985; Hollis, 1985; Sheppard, 1989). Thus, an experimental setting is not necessarily going to elicit overeating that accurately reflects obese subjects' usual eating behaviors.

In contrast to laboratory experiments, studies that rely on self-report measures have provided far greater support for the PMO. In his literature review, Ganley (1989) concludes that obese people are significantly more likely to engage in emotional eating than non-obese people, and self-reports of emotional eating are widespread in people of all degrees of overweight. In their own review, however, Allison and Heshka (1993a) question Ganley's conclusions and suggest possible flaws in self-report measures of overeating. They first point out that measures of emotional eating have been found to be highly correlated with social desirability measures (Allison & Heshka, 1993b). They speculate that perhaps obese people are more prone than nonobese people to respond to questions about emotional eating in the manner they believe is expected or desired of

them. This idea is consistent with Rodin and Slochower's (1974) finding that obese people are more compliant than nonobese people with social demands and expectations. Further, it is suggested that obese people may experience a treatment effect in that they identify themselves as emotional eaters more often after participating in treatment programs that teach about emotional eating (Allison & Heshka, 1993a). While it seems likely that there is a difference in the degree to which overweight and normal weight people engage in emotional eating, the difference may not be as great as Ganley (1989) has suggested and may be due to the prevalence of emotional eating in particular types of obese people only. Faith, Allison, & Geliebter (1997, p. 443) conclude that "recent data tentatively suggest that certain subgroups of obese persons might be more prone to emotional eating than others". These subgroups include restrained eaters, binge eaters, carbohydrate cravers, and emotional eaters as their own unique subgroup.

The concept of restrained eating was developed by Herman and Polivy (1980) who were building on the earlier work of Schachter (1968). Restrained eating "refers to the self-perception that one is intentionally eating less than desired, typically to lose or maintain weight" (Faith, Allison, & Geliebter, 1997, p. 443). According to this model, obese people as restrained eaters are chronically dieting; these attempts lead to disinhibition which is the tendency to lose restraint. During an episode of disinhibition, the obese person eats more than usual after being triggered by some stimulus (Lowe, 1993). It has been found that restraint is not always a precondition for emotional eating (e.g., Wilson, Nonas, & Rosenblum, 1993). Thus, it seems appropriate to consider restrained eaters as a subgroup of obese people rather than synonymous with obese people; obese people are not a homogeneous group. Another subgroup to be aware of is

binge eaters. Eating binges have been described as "commonly endowed with personal meaning not infrequently associated with a sense of depersonalization, and at the same time often experienced as highly pleasurable ...invariably accompanied by physical discomfort and expressions of self-condemnation" (Casper, 1988, p. 168). While Stunkard (1959) first identified the pattern of binge eating, it did not receive much notice until the 1980s. Studies conducted in recent years (e.g., Brody, Walsh, & Devlin, 1994; Spitzer, et al., 1992; Spitzer, et al., 1993) have led to the development of the DSM-IV's (American Psychiatric Association, 1994) diagnosis of Binge Eating Disorder (BED). Binge eaters who meet the diagnostic criteria make up approximately 30% of obese people in treatment programs (Spitzer et al., 1992; Spitzer et al., 1993). Binge eaters have been found to have significantly higher rates of psychopathology than non-bingeing obese people (Kolotin, Revis, Kirkley, & Janick, 1987; Marcus, 1993; Yanovski, Nelson, Dubbert, & Spitzer, 1993)

While higher rates of psychopathology have been found in obese binge eaters, there is little evidence to suggest that obese people in general have any more psychopathology than nonobese people. Even though Binge Eating Disorder is now a psychiatric diagnosis (American Psychiatric Association, 1994), obesity is considered to be a heterogenous medical problem. Obesity is not associated with any one personality type (Barrash, Rodriguez, Scott, Mason, & Sines, 1987; Blankmeyer, et al., 1990). Many clinical studies have assessed the psychological functioning of treatment-seeking obese people. A number of these have found obese patients to have elevated levels of depression (e.g., Johnson, Swenson, & Gastineau, 1976; McCall, 1973; Pomerantz, Greenberg, & Blackburn, 1977), mania, psychopathic deviancy, and psychasthenia (Johnson et al.,

1976; Werkman & Greenberg, 1967). Foster and Wadden (1994, p. 146) have concluded that "there is no question that a significant minority of persons presenting for treatment will report significant psychological distress, which may require treatment". It is important to point out, however, that many of the clinical studies did not use control groups. In fact, the aforementioned psychopathology levels in treatment-seeking obese people are comparable to the levels found in over 18,000 people who sought treatment for medical and surgical procedures at the Mayo Clinic (Swenson, Pearson, & Osborne, 1973). In other words, people "seeking clinical care, regardless of their specific disorder, often have increased dysphoria and other psychological disturbance" (Foster & Wadden, 1994, p. 146-147). In contrast to the clinical studies, population studies have failed to identify significant psychopathology in obese people (Moore, Stunkard, & Srole, 1962; Wadden & Stunkard, 1985). Further, two population studies actually found obese people to be significantly less anxious and depressed than normal weight people (Crisp & McGuiness, 1976; Stewart & Brook, 1983). The search for psychological problems has been mostly abandoned at this point because it seems likely that psychopathology in obese people is more the result, not the cause, of obesity (Stunkard, 1985). Additionally, for some obese people elevated anxiety and depression levels are the result of dieting (Halmi, Stunkard, & Mason, 1980).

Family Research and Theory

Research beginnings.

Research regarding the genetic, behavioral, and psychological characteristics of obese people has been plentiful for decades. Less attention has been given to the family variables of obese people, particularly patterns of marital and family interaction. Perhaps the first study regarding family environment was

Bruch's investigation of 40 obese children who were referred to a pediatric clinic in New York (Bruch & Touraine, 1940). This study was the basis for her development of the Psychogenic Family Milieu Theory of Obesity. Bruch identified several trends in the families that she studied. Parents were found to be bitter and deprived, and hostile with each other. Mothers in particular were found to be consumed with their own problems to the point of not providing adequate security and affection to their children. Instead of providing healthy affection to children, mothers presented as excessively attached to and overprotective of the obese child. In these families, the world was viewed as a dangerous place and children were discouraged from physical activity and interaction with non-family members. Children were also discouraged from thinking or speaking for themselves; rather, they were dependent "possessions" of their mothers who spoke for them. Subsequently, several Dutch and American researchers studied obese children and their families to test Bruch's theory (Bronstein, Wexler, Brown, & Halpern, 1942; Iverson, 1953; Juel-Nielsen, 1953; Ostergaard, 1954; Quaade, 1953; Sallade, 1973; Tolstrup, 1953). These samples were recruited from clinics and schools. For the most part, these researchers did not replicate Bruch's findings. Some reported dependency and immaturity in the obese children, but generally the parents in these later studies were content and the families were peaceful. Bruch's study has been criticized for the subjective nature of data collection; she relied heavily on psychiatric interviews with parents, usually only the mothers. Casper (1988, p. 162) has summarized the findings of these studies and points out that neither Bruch nor the later researchers made use of control groups with one exception (Ostergaard, 1954).

In her clinical practice, Bruch continued to observe the families of obese children for

decades. She conducted a long-term study of obese children through to adulthood. She found a strong positive correlation between congeniality in families of origin and good social adjustment in adult children. Favorable families of origin were not preoccupied with or punitive toward the child's obesity. Poorly adjusted adult children who remained heavy tended to come from families of origin characterized by parental overinvolvement (Bruch, 1957). In her landmark book, Eating Disorders (Bruch, 1973), which summarizes observations made in her psychiatric practice, Bruch maintained and expanded on many of her original assertions about obese children and their families. However, she also acknowledged the importance of the family system and the inadequacy of looking at individual pathology alone. She wrote, "Instead of isolated behavior traits of one or the other parent, the multiple functions of the family have been clarified and defined, and emphasis has shifted to the way the different members interact" (p. 75). She also acknowledged the heterogeneity of obesity and distinguished three main types. First, she identified a physiological type of obesity that is unrelated to emotions. Second is what Bruch referred to as "reactive obesity" (p. 125) which is the result of overeating in response to certain feelings, trauma, or stress (i.e., previously referred to as "emotional eating"). The third type of obesity, "developmental obesity" (p. 124), begins in childhood and is related to a child's inadequate maturation of personality. She described the families with a developmentally obese child to be similar to the schizophrenic families described by Lidz (1969), characterized by the "use of a child to complete the parents' life and to maintain the parents' marital relationship, failure of the parents to adhere to the respective gender-linked roles, and disruption of the boundaries between the generations... the parents' inability to establish boundaries between

themselves and the child" (Bruch, 1973, p. 75). Further, "communication within these families is grossly disturbed in content, in conflicting emotional messages, and in role allocation" (p. 75). As the child is required to fulfill a parent's needs or fix a deficit in the parents' marriage, he or she is unable to attend to the task of growing into an autonomous person. At the same time, the child is overfed in an attempt to compensate for parental inadequacies. The result is that "the child has a more or less generalized deficiency of self-awareness, lacking an appreciation of owning his/her own body, living his/her own life, and being an active agent in the world" (Loader, 1985, p. 215). This lack of self-awareness extends to appetite; the child has trouble distinguishing hunger from other bodily sensations, feelings, or needs (Bruch, l973). As the child reaches adolescence ill-equipped to achieve genuine autonomy, she may resist her parents' urges to diet as an attempt to achieve some semblance of independence. Over time obesity can become an excuse for not achieving autonomy or for failure to live up to parental expectations. Thus, dieting failure reflects, in part, a fear of losing one's "alibi" (Brone & Fisher, 1988).

Psychosomatic families. Bruch's (1973) description of the family dynamics in families with an obese child overlaps greatly with the description of psychosomatic families suggested by Minuchin and other advocates of family systems theory (Framo, 1970; Minuchin, Baker, Rosman, Liebman, Milman, & Todd, 1975; Minuchin, Rosman, & Baker, 1978; Weakland, 1977). According to the psychosomatic family model, the family's identified patient exhibits a symptom that serves some function in the family. The symptom may be an exacerbation of an established medical condition (e.g., diabetes) or it may have little if any biological basis (e.g., anorexia nervosa). "Generally speaking, symptoms are maintained or reduced to the extent that they serve relationship system

functions and are an integral component of and bonding force in the relationships" (Framo, 1970, p. 152). The function of the symptom is not necessarily the same for every family but could involve boundaries, conflict, communication, power, or other family processes. In studying the families of children who suffered from diabetes, anorexia, asthma, and chronic pain, Minuchin et al. (1975) identified four common family characteristics: enmeshment, rigidity, overprotectiveness, and inability to resolve conflicts. Enmeshment is defined as "an extreme form of proximity and intensity in family interactions" (Minuchin et al., 1978, p. 30). With enmeshment, subsystem boundaries are weak, ineffective, and easily crossed. This leads to family members being "in each others' laps" emotionally, so to speak. There is parent/child heirarchy confusion, great difficulty in achieving individual autonomy, and a lack of privacy for individuals and subsystems. Rigidity refers to the family's strict investment in keeping the family the way it has always been. Change and growth are perceived as unnecessary, difficult, and threatening. Overprotectiveness is the result of members' hypersensitivity to each other and is not limited to the sick family member. Parents' overprotectiveness interferes with children's development of independence, competence, and attachments in the outside world. Children also feel responsible for protecting the family, and for the sick child "the experience of being able to protect the family by using the symptoms may be a major reinforcement for the illness" (Minuchin et al., 1978, p. 31). Conflict resolution does not occur in psychosomatic families. Many of these families deny that there are any problems; therefore, they avoid all disagreements. Other psychosomatic families acknowledge but then limit the presence of conflict by distracting to diffuse the issues. By watching the family transactions rather than the identified patient, Minuchin (et al.,

1978) further identified cyclical patterns that maintained and were maintained by the psychosomatic behavior of the child. In essence, "the patient's symptom acquired new significance as a regulator in the family system" (1978, p. 32) that is intricately involved with the marital conflict of the parents. Parents are able to avoid conflict by using the patient/child in three ways: "triangulation, parent-child coalition, and detouring" (1978, p. 33). Triangulation is when the child is cornered overtly into appearing to side with one parent against the other. In a parent-child coalition, the child and one parent are united, consistently leaving out the other parent. Detouring occurs when outwardly united parents avoid conflict by focusing on the sick child in an accusatory or protective manner. These parents do not acknowledge any family problem other than the child's illness.

A family systems perspective with consideration of the psychosomatic family model has been used to develop a partial explanation of obesity in families (e.g., Doherty & Harkaway, 1990; Ganley, 1986; Harkaway, 1983, 1986). Obesity can be a symptom of family dysfunction in a direct or an indirect way. There is a direct connection when the symptom is the condition of obesity; an indirect connection between obesity and family dysfunction occurs when the symptom is overeating. In these families, dysfunctional interaction patterns lead to negative feelings which lead to emotional eating; the result is obesity (Ganley, 1986). The family systems perspective of obesity can be applied to the family of origin and to the family of procreation; the identified patient can be an obese child or an obese spouse/parent. There is evidence to suggest that obesity is positively correlated with certain types of family dysfunction.

Family of origin research. In families of origin, obesity can be related to boundary

problems. Specifically, boundaries within the family tend to be diffuse while boundaries between the family and the outside world tend to be rigid (Harkaway, 1986). In an obese family, obesity is a means of expressing loyalty while being thin could be viewed as betrayal of the family in favor of the outside world. Kinston, Loader, Miller, and Rein (1988) used the Family Experience Interview (Cromwell, Olson, & Fournier, 1976), a clinical interview designed to elicit family interaction, to study families' perceptions about obesity. They found obese children and their families to be unsure if they prefer being fat or thin, even though they perceive obesity as a negative condition. These authors conclude the most likely explanation for this seemingly illogical finding is the families' value on maintaining the status quo; families are hesitant to alter their identities of themselves. Obesity and overeating are ways for family members to form alliances. A child who is aligned with one parent over the other may choose to have the same symptom as the aligned parent. This dyad can bond by sharing food, diets, and the experience of being fat. In her clinical interviews with five obese families, Harkaway (1986) found obese adolescent girls to be aligned with their obese parents. Obesity can secure the family boundary by postponing a child's leaving home.

It is suggested that obese children are less accepted, have more problems in social relationships, and frequently stay tied to the family of origin longer than nonobese children (Doherty & Harkaway, 1990). Bullen, Monello, Cohen, & Mayer (1964) found obese adolescent girls to report being more afraid to leave home than nonobese girls who reported having families from which one can easily separate. Harkaway (l986) found obese families to have difficulty adapting to the changes associated with adolescence.

Parents of obese children have reported having families that are socially isolated, where family members rely on each other for companionship (Banis & Varni, 1988; Hammar, et al., 1972). Hammar et al. (1972) used direct observation and subjective parental reports to make their assessments while Banis et al. (1988) made use of selected subscales of the Family Environment Scale (Moos & Moos, 1981). Also using the FES (Moos & Moos, 1981) and direct observations at dinnertime, Beck and Terry (1985) found parents of obese girls to view their daughters as less independent and less interested in outside-of-the-family activities when compared to nonobese girls' parents' reports. Along the same lines, Harkaway (1986) and Banis et al. (1988) found a low tolerance for autonomy in families with one obese parent and one obese adolescent girl. Further, Johnson and Birch (1994) devised the Child-Feeding Questionnaire to assess uses of food in parenting. They found parental overcontrol and children's weight to be positively correlated; these researchers speculate that parental overcontrol leads to children's inability to discriminate internal hunger cues. This is in keeping with previous findings that obese families have more rules than control families (Banis et al., 1988; Beck & Terry, 1985) and one subgroup of obese families tend to be overprotective, enmeshed, and rigid (see review by Hertzler, 1981). Possibly in contrast to these findings, it has been found that obese families are poorly unified with lower levels of family commitment in comparison to control families (Banis et al., 1988; Beck & Terry, 1985; Bullen, et al., 1964). Perhaps families bond around the issue of obesity to compensate for a lack of more genuine bonding.

There is evidence to suggest that obesity is related to family communication and conflict resolution. Obese families have been found to be characterized by low

sociability among family members and excessive fighting between siblings when compared to control families (Bullen, et al., 1964). These tendencies were observed as well as reported by the obese adolescent girls. When observed during a meal and playing a game, mothers of obese children have been found to interact less, show approval less, and respond less to their children than mothers of normal weight children (Birch, Marlin, Kramer, & Peyer, 1981). Kinston, Loader, Miller, & Rein (1988) found families with an obese child to have higher incidences of marital hostility, parental criticism of children, and differential treatment of children by parents. Usually it was the obese child who was treated less favorably, and this treatment tended to result in the child withdrawing or being excluded. Obese adolescents have been found to be scapegoats for their parents' and siblings' anger and frustration (Hammar et al., 1972). Parents' marital hostility was found to be more pronounced when the obese child was female. Teenage girls who report being from mother-dominated families have been found to have higher incidences of obesity than girls who report being from families where parents work together as a team (Kagan & Squires, 1983). Further, girls who report being considered in family decision making are less likely to be obese than girls who are not considered (Bromberg, 1977; Kagan & Squires, 1983). When all family members have been surveyed about family decisions, families of obese girls have been found to have more chaotic, less unanimous decision making processes (Bromberg, 1977).

Obese families, compared to controls, are thought to be characterized by more conflict, less support (Beck & Terry, 1985), and more conflict avoidant behavior such as diffusion and covert communication (Harkaway, 1986). Families with an obese child also have been found to have more problems expressing their feelings than families with

a child suffering from coelic disease. There is evidence to suggest that obese families tend to hide their needs and problems, and their desire to make a good impression partially obscures problematic interaction. (Kinston, et al., 1988). Doherty and Harkaway (1990) suggest that obesity in children is due in part to control issues. The child will not cooperate with a proper diet "as a way of maintaining personal control. Ironically, it is a form of pseudo-rebellion, an act of rebellion that paradoxically keeps the child closely tied to the parents" (p. 292) who are frequently "too divided to be effective in working together to control the child's eating and behavior (p. 293).

In general, it appears that the family is relevant to obesity in children. Family based treatment of childhood obesity has been found to be more effective than individual treatment (Epstein, Valoski, Wing, & McCurley, 1990). Further, for obese youths in a behavioral weight control program, the stronger the belief that the obesity was due to family problems, the less weight was lost (Uzark, Becker, Dielman, & Rocchini, 1987). It also appears that families with an obese child do tend to function differently from control families. The extent and nature of this difference remains unclear however. Kinston and Loader (1984) found a negative correlation between family functioning and child's weight, but only in families of girls. In a later study, these same researchers (Kinston, Loader, & Miller, 1987a) found significantly more impairment in obese families by using clinical measures (home interview family ratings, Kinston, Loader, & Miller, 1987b) but not by using a standardized objective measure (The Family Health Scales by Lewis, Beavers, Gossett, and Phillips, 1976). While individual family members were no more unhealthy than controls, the family patterns were. Mothers of obese children rated their families as more dysfunctional than mothers of control

children. However, in obese families, the mothers' ratings of family health were *positively* correlated with the children's weight. With further analysis, it was found that this trend is due mostly to families of obese girls (Kinston, Miller, Loader, & Wolff, 1990). Thus, these authors concluded that obese families are not necessarily more dysfunctional than nonobese families but they do show a specific type or pattern of disturbance; for example, the parents in control groups were equally disturbed, while mothers of obese children had a history of more emotional disturbance than the fathers (Kinston, Loader, & Miller, 1987a). Johnson, Brownell, St. Jeor, Brunner, and Worby (1997) have studied the families of origin of obese adults. For men they found family of origin cohesion to be positively correlated with good eating attitudes and negatively correlated with feeling out of control with food, and family of origin adaptability was negatively correlated with age of obesity onset. However, weight and family of origin variables were not found to be significantly correlated, and there were no significant findings for women. Several researchers have concluded that certain obese families display characteristics that are consistent with the psychosomatic family model (Harkaway, 1986; Hertzler, 1981; McVoy, 1986; Wiley, 1979).

Parenting styles related to food/eating. In addition to looking at family patterns in general, there has been some study on specific patterns of interaction related to food and eating behaviors. Food can be used as a reward, a punishment, or a consolation. Bruch (1973) stated that in obese families food becomes symbolic of and to some extent replaces caring and affection. More recent research has focused on the influence that parents have on their children's eating patterns. For example, it has been observed that children tend to eat what is modeled to them by parents (Cutting, Grimm-Thomas, &

Birch, 1997; Pike & Rodin, 1991). Toddlers are more likely to put in their mouths what their parents have eaten than what a stranger has eaten in front of them (Harper & Sanders, 1975). While children are apt to do what their parents do, they are not necessarily going to do what their parents say. It has been found that the more a parent encourages a child to eat something, the more the child dislikes the food item (Birch, Birch, Marlin, & Kramer, 1982). It is as if the child believes there must be something wrong with the food if so much prompting occurs. However, when food is used as a reward in nonfood related tasks, the child's preference for that food increases (Birch, Zimmerman, & Hind, 1980). Further, children's food intake increases significantly after they are rewarded for cleaning their plates (Birch, McPhee, Shoba, Steinberg, & Krehbiel, 1987).

A variety of observational studies have indicated that children naturally have the means to self-regulate their food intake if given the chance (see review by Birch & Fisher, 1998), but parental control interferes with a child's response to his/her internal cues. The more a parent prompts the child, the more time the child spends eating and the greater the child's degree of overweight (Klesges, Malott, Boschee, & Weber, 1986). Parental prompts have been found to be preceded by a child's refusal to eat something and followed by the child's compliance in eating (Klesges, Coates, & Brown, 1983). These findings suggest that children do attempt to self-regulate but parental control can deter children from acting on their internal cues (Birch & Fisher, 1998). Parental overcontrol is especially likely if the parents are out of control with their own behavior or if the child is perceived to be at risk for obesity (Costanzo & Woody, 1985). Mothers who are restrained eaters are more likely to impose control over their daughters' eating;

these daughters have less ability to self-regulate than daughters who do not have restrained mothers. This finding is specific to the mother/daughter relationship and does not apply to sons (Johnson & Birch, 1994). This is consistent with Hertzler's (1996) finding that girls are more likely to grow up being warned against getting fat than boys are. Birch and Fisher (1998) conclude:

> controlling child-feeding practices can have negative and unintended effects on children's food preferences and the developing controls of food intake. It is likely that such practices foster rather than prevent the development of childhood obesity and eating problems... (p. 546).

Marital research. Obesity family research has not been limited to the families of origin. Researchers have also studied the marital relationships of obese people. Generally speaking, married people are more likely to be obese than singles (Hayes & Ross, 1987; Sobol, Rauschenbach, & Frongillo, 1992), and many people tend to gain weight after marrying (Craig & Truswell, 1990; Kahn & Williamson, 1990). Much of what has been suggested about obesity in marriages has come from clinical interviews. According to a number of psychotherapists (e. g., Abramson, 1993; Harkaway, 1983; Hollis, 1985; Stuart & Jacobson, 1987) overeating and obesity are often related to marital dynamics, and can be symptoms of marital problems. In their large-sample survey of overweight women, Stuart and Jacobson (1987) found obesity to be related to marital happiness. Seventy-five percent of the overweight women reported being happily married and the other women reported varying degrees of marital unhappiness. While the happily married and the unhappily married women had similar weights at the time of marriage, their weights were quite dissimilar after 13 years of marriage. Happily married women and unhappily married women had gained an average of 18.4 pounds and 42.6

pounds respectively. Happily and unhappily married husbands' weight gains were similar according to their wives' reports. While income status, education level, and number of children were relevant to weight gain, these factors were negligible compared to the effects of marital happiness. By taking extensive weight histories from treatment-seeking obese patients, Bradley (1985) found marital problems to be the major psychological stressor identified by overweight women as a cause of weight gain. Further, Felitti (1993) found treatment-seeking obese patients to have more extensive histories of marital dysfunction and break-ups than controls.

As in families of origin, overeating and overweight can be associated with boundaries for some couples. The boundary around the couple can be strengthened by obesity in that it makes infidelity and jealousy less likely. Some overweight people believe they would be more likely to stray if they felt more sexually attractive (i.e., thin); they also report worrying that their spouse would be more jealous if they were thin (Doherty & Harkaway, 1990; Stuart & Jacobson, 1987). Indeed, a significant number of husbands of dieting obese women acknowledge being worried that their wives may divorce or cheat on them after they lose weight (Hollis, 1985). Overeating together and/or being fat together can be experienced as spousal bonding (Doherty & Harkaway, 1990; Hollis, 1985; Prest & Storm, 1988).

Obesity and overeating behaviors also can be related to conflict and control in marriages. Overeating is a way to "stuff" the negative feelings associated with marital problems. If one of the issues in the marriage is the woman's weight (even when she's thin), she may eat to rebel against the conditional acceptance she feels (Stuart & Jacobson, 1987). Harkaway (1983) describes obesity as a way of maintaining the balance

of power in a marriage. She states that an obese wife can maintain a one-up position by resisting diets, by refusing to be "cured"; at the same time she is in a one-down position in that she is the symptomatic spouse who engages in shameful behavior. The obese woman's husband can maintain his one-up position by remaining symptom free, at least in regard to obesity; he is in the one-down position in that he is powerless over his wife's eating and weight. Stuart and Jacobson (1987) summarize:

> When a woman's weight is a major issue in her marriage, her body becomes the battleground in a power struggle no one wins. By staying fat, she has the satisfaction of knowing she's not "giving in "to her husband's control. But she works against her own best interests by mistakenly assuming she has to choose between being fat and independent or being subservient and thin (p. 62).

In one University of Pennsylvania study of women enrolled in a weight control program, husbands were asked, "In your own words, what changes would weight reduction by your wife mean to you?". Twenty-seven out of 55 husbands reported that the wife's weight loss would likely mean a "loss of a bargaining position in arguments" for them (Hollis, 1985, p. 44). In his literature review, Ganley (1986) has discussed the relevance of Minuchin's psychosomatic model to the obesity literature. He asserts that the "unusually high levels of passivity and unassertiveness found in the obesity literature, along with difficulties in expressing negative emotions, especially anger, provide evidence" (p. 442) that obese families tend to be characterized by an inability to resolve conflict. Unassertiveness has been found to be positively correlated with obesity in several studies (e.g., Chalmers, Bowyer, & Olenick, 1990; Hafner, Watts, & Rogers, 1987; Pomerantz, Greenberg, & Blackburn, 1977; Solow, Silberfarb, & Swift, 1974); many of these studies have used treatment seeking samples rather than obese people from the general population . While a lack of assertiveness does not constitute psychopathology, it does interfere with conflict

resolution. One study that failed to find a connection between assertiveness and obesity, used a general measure of assertiveness rather than a measure that was family specific. More study is needed in this area to determine if there is an assertiveness/obesity link specific to the family in the general population.

The vast majority of research pertaining to obesity and marital relationships has used small samples of patients who were seeking a surgical solution to their obesity. In one pretest of surgery candidates, marital dissatisfaction was significantly related to later onset obesity and the dissatisfaction was found to be closely linked to the obese person's self-assertion problems (Hafner, Watts, & Rogers, 1987); marriages were assessed using the Hostility and Direction of Hostility Questionnaire (Philip, 1973) and the Marital Attitudes Evaluation Scale (Schutz, 1967). About half of the surgery studies have found that spousal participation in treatment was irrelevant to treatment outcome (e.g., Brownell & Stunkard, 1981; Weisz & Bucher, 1980; Wilson & Brownell, 1978) while other studies have found spousal participation to be significantly positively correlated with treatment outcome (e.g., Brownell, Hecherman, Westlake, Hayes, & Monti, 1978; Murphy, et al., 1982; Pearce, LeBow, & Orchard; 1981; Rosenthal, Allen, & Winter, 1980). This discrepancy can be explained in large part by the varying definitions of "spousal participation". When the spouse was merely asked to indicate a willingness to cooperate with the obese person's treatment, there was no correlation between "spousal participation" and treatment outcome. In contrast, when spouses were given specific training, including instructions not to interfere with treatment, there was a positive correlation between spousal participation and treatment success (Murphy, et al., 1982; Pearce, et al., 1981; Rosenthal, et al., 1980). Pearce et al. (1981) suggest that

instructing the spouse on how to not interfere with treatment may be as effective as having the spouse present during treatment. Through use of the Barbarin Family Process Scale (Barbarin & Gilbert, 1979) and clinical interviews, Barbarin and Tirado (1985) found that treatment outcome was unrelated to family process in disengaged families; however, in enmeshed families, long-term weight loss maintenance was positively correlated with family support and satisfaction.

Surgical treatment of obesity has been found to have a negative effect on some marriages, giving support to the idea that obesity in some marriages is a symptom that maintains system equilibrium. Significant post-surgery marital tension or conflict has been reported frequently by obese patients who lose weight (Abram, et al., 1976; Castelnuovo-Tedesco & Schiebel, 1976; Crisp, Kalucy, & Pilkington, 1977; Marshall & Neill, 1977; Neill, Marshall, & Yale, 1978; Solow, et al., 1974). Divorce has also been identified as a result of the surgical treatment of obesity (Neill et al., 1978; Rand, Kuldau, & Robbins, 1982; Solow et al., 1974). In one of the few studies using a control group, Rand et al. (1982) found a somewhat higher divorce rate for post-surgery couples compared to controls. This was especially true for couples who reported their marriages to be troubled before the surgery. They concluded that post-surgery divorce was not due to the surgery per se; rather, the higher divorce rate was due to the higher pre-surgery rate of marital conflict in surgery-seeking couples compared to controls. Further, obese people were more likely to divorce after surgery because the weight loss improved their psychological functioning to the point that they could get out of unhappy or exploitive marriages. Marriages that were reported as satisfactory before surgery tended to improve with weight loss (Rand et al., 1982) and these findings were confirmed with a five-year

follow-up (Rand, Kowalski, Kuldau, 1984). In one study of 54 surgical patients, researchers looked specifically at the couple's internal functioning, boundary activity, and external stress. Fifty-two percent of the couples reported that their relationship was better after the surgery while 42% reported no change in the marriage. However, the 39% of couples who had a history of counseling were more likely to experience post-surgery marital conflict (Goble, Rand, & Kuldau, 1986). Consistent with the previously addressed connection between unassertiveness and obesity, a number of studies have found patients to be more assertive, more outspoken, and generally less concerned with pleasing others after their surgeries (Abram, et al., 1976; Castelnuovo-Tedesco & Schiebel, 1976; Crisp, et al., 1977; Solow, 1977; Solow, et al., 1974). Post-surgery patients have reported becoming aware of greater emotionality with more fluctuations in anxiety, depression, and hostility, compared to before the surgery (Castelnuovo-Tedesco & Schiebel, 1976); this is consistent with the belief that obesity is related to suppressing feelings.

A few non-surgical help-seeking couples have been studied. Dubbert and Wilson (1984) found no relationship between pre-treatment weights and marital satisfaction; weight loss success was also found to be unrelated to marital satisfaction. Prest and Storm (1988) studied couples involved in 12-step recovery groups to compare the family interactions of compulsive drinkers with compulsive eaters. There were 20 couples total with the two groups equally represented; the Structured Dyadic Interview was used for assessment. The compulsive eaters (CEs) identified that the main reason for their compulsive behavior was "dealing with problems or negative feelings and conflict resolution" (p. 345), and 80% stated that they usually binge because of problems with

their spouse. All of the compulsive eaters stated that they rarely or never experienced positive conflict resolution in their families of origin. This tendency carried over into the current marriage: 90% of the CEs reported that their spouse withdraws in response to the CE's negative feelings; 80% of the CE couples reported distance as the outcome of conflict, with the distance often leading to one or both of them engaging in compulsive behavior; 70% of the CE couples reported reaching problem resolution at most only occasionally. Seventy percent of CE couples reported that they argue about the compulsive eating, and 70% of the CEs said that when they think of marital problems, they think of the compulsive behavior. The "focus is not on communication about problems, resolving conflicts, or sharing feelings safely, but on how to cure the IP's condition. The compulsive behavior seems to be triangulated into the couple's relationship and interactions much the same as are children" (p. 347).

Research studies that have made use of the general population (not just treatment seekers) to study the marital interaction of obese people have been scarce. Klesges, Klem, and Klesges (1992) found no relationship between body weight changes and marital satisfaction in their cardiovascular risk study of 399 men and women. Similarly, in a mental health study of 1168 adults, no significant correlation was found between obesity and marital conflict (Cohen, Schwartz, Bromet, & Parkinson, 1991). In contrast are the findings of Margolin and White (1987) who used a national sample to study the relationship between weight gain and marital quality. They found wives' weight gain to be positively correlated with marital problems and husbands' disinterest in sex. Sobal, Rauschenbach, & Frongillo (1995) have studied weight, weight change, marital happiness, and marital problems in the general population by analyzing data collected by

the NCHS (National Center for Health Statistics) in 1979 and 1980 (one-year follow-up). Few significant correlations between the various weight-related measures and the two measures of marital quality (unhappiness and problems) were found. The findings that were significant were somewhat puzzling: nonobese men and men who had lost weight after the year reported less marital problems; obese women were less likely to report marital unhappiness; both men and women who gained weight during the year were happier in their marriages. These researchers conclude "that body weight is not associated with most aspects of marital quality...These mixed results match the variation in findings of prior research" (Sobal, et al., 1995, p. 756).

From psychoanalysts of the past to current day therapists and researchers, most agree that obesity is in some way related to sexuality at least for some people. Coriat (1921) and Hamberger (1951) both found overeating to be associated with real or imagined sexual conflict. To the extent that sexual attractiveness is equated with thinness, "gaining weight can be a move to create distance between the partners, and losing weight can be an attempt to draw closer" (Doherty & Harkaway, 1990, p. 293) in terms of emotional and sexual intimacy. As previously discussed, obesity can be a chastity belt of a sort, a deterrent to promiscuity and infidelity. When people are less attractive (i.e., fat) they not only are less tempted to stray, they are also less likely to experience unwanted sexual advances, within and outside of the marriage. Within the marriage, Stuart and Jacobson (1987) have found moderately dissatisfied wives to be most likely to use weight as a distancer. Happily married wives did not want the distance, and very unhappily married wives were more overt with their unhappiness and did not bother with the covert use of weight as a distancer. Outside of the marriage many women who felt respected and

unconditionally accepted when overweight have become disillusioned with thinness when it resulted in unwanted sexual attention from former "friends" (Stuart & Jacobson, 1987). Obesity can also be a means of self comfort when a spouse is sexually rejecting. Many women attempt "to stifle their own desire for sex when their husbands can't or won't have intercourse. Many apparently believe it 'hurts less' if they deliberately contribute to their own rejection by gaining weight. It's as if they're saying, 'You can't fire me, I quit!'" (Stuart & Jacobson, 1987, p. 58).

Sexuality was often studied in the research regarding surgical patients. A number of studies have found that sexual activity has increased for surgical patients after surgery (Castelnuovo-Tedesco, 1980; Castelnuovo-Tedesco & Schiebel, 1976; Crisp et al., 1977; Dano & Hahn-Pedersen, 1977; Goble et al., 1986; Solow, 1977; Solow et al., 1974). Rand et al. (1982) found marriages that were satisfactory before surgery were characterized by greater sexual satisfaction at the three-year and five-year post-surgery follow-up (Rand, Kowalski, & Kuldrau, 1984). Patients reporting increases in sexual satisfaction post-surgery have been reported to range from 36% (Dano & Hahn-Pedersen, 1977) to 63% (Rand et al., 1982). Further, increases in sexual fantasies and extramarital affairs were found to increase after surgery (Castelnuovo-Tedesco & Schiebel, 1976; Crisp et al., 1977). In the Goble et al. (1986) study, the 39% of surgery patients who reported a history of marital counseling before surgery also reported a decrease in sexual activity after surgery. Thus, it seems that for those who are happily married, being thinner is a means of enhancing one's sex life. However, for those who are not happily married, weight may serve as a means of distancing, or perhaps sexually dissatisfied obese people develop the assertiveness to say no to sex after losing weight.

Consideration of eating patterns. There have been a few attempts to look at obese family dynamics with consideration of certain dysfunctional eating patterns. Ganley (1992) has studied the relationship of certain family dynamics to weight and to restrained eating (defined as high levels of emotional eating with frequent dieting attempts). He compared four groups of women: obese restrained eaters, obese non-restrained eaters, normal weight restrained eaters, and a control group of normal weight non-restrained eaters. He assessed relationship patterns by using FACES II (Olson, Bell, & Portner, 1982) and the Barrett-Lennard Relationship Inventory (Barrett-Lennard, 1978). Women currently in treatment (the obese restrained group) were found to be more disengaged, rigid, and passive-aggressive with anger than the other groups; they were also less assertive with poorer marital communication than the other groups. The lack of such a pattern in non-restrained obese women suggests that there are subgroups of obese people. Further, it suggests that the psychosomatic symptom in obese families is not so much obesity per se as it is problematic eating and weight patterns (e.g., emotional eating, weight lability). In like manner, Friedman, Wilfley, Welch, and Kunce (1997) have compared the family functioning of overweight binge eaters, overweight nonbinge eaters, normal weight bulimics, and normal-weight nonbulimics. Family functioning was measured by use of the Family Interaction Survey (Kunce & Priesmeyer, 1985) and the Structural Analysis of Social Behavior Short Form (Benjamin, 1994). The two binge eating groups differed from the two nonbinge eating groups "across all measures of symptomology, family functioning, and self-directed hostility" (p. 373). While normal-weight bulimics reported significantly higher levels of self-directed hostility than overweight binge eaters, the two groups reported similar levels of hostility within their

families. It should be noted that both groups of binge eaters were treatment-seeking while the normal eaters were not. These studies support Bruch's (1973) suggestion that there are groups of obese people who have fairly stable weights; the family system and emotional influences are not significantly relevant for these groups. They also lend support for the idea that there are certain subgroups of obese people who are more prone to emotional eating than others (Faith, Allison, & Geliebter, 1997).

Summary of previous research. Clinical anecdotes about obese people's families have existed for years, particularly among psychoanalysts. In contrast, empirical studies regarding the family systems variables of obese people have been minimal in comparison to studies that address the individual psychological and genetic characteristics. There have been serious limitations in the studies that have been done so far, specifically in regard to samples used. In the studies of obese children and adolescents, a variety of data collection techniques have been used: self-report measures, parental-report measures, clinical interviews and observations. However, many of these studies have used very small samples (e.g., Beck & Terry, 1985; Harkaway, 1986) and/or have failed to use control groups (see summary by Casper, 1988, p. 162). A number of the child studies have involved treatment-seeking subjects (e g., Bruch, 1973; Harkaway, 1986; Kinston, et al., 1988). The use of treatment-seeking subjects has been even more the norm for marital studies. With few exceptions, marital studies have used subjects who were seeking a surgical solution to their obesity (e.g., Neill et al., 1978; Rand et al., 1982; Solow et al., 1974). This is problematic in that treatment-seeking people are believed to differ from those who are not seeking treatment (Foster & Wadden, 1994). It would be unwise to assume that findings from these studies could be applied to the general

population. The few general population studies that have been done have produced equivocal results (e g., Cohen et al., 1991; Klesges et al., 1992; Margolin & White, 1987; Sobal et al., 1995). This is likely due in part to the simplistic assessment of marriage (e. g., "happy" vs. "unhappy") rather than a more in-depth look at family system processes. Thus, there is a need for further investigation of specific family systems variables of obese people *in the general population.*

The Psychosomatic Family Model has received some support from studies of obese families. Kinston, Loader, Miller, and Rein's (1988) finding that obese children and their parents felt ambivalent about obesity is relevant. Given the stigma and health risks associated with obesity, it would be expected that obese children and their parents would want the children to be a more normal weight; the families' ambivalence suggests that the obesity serves some unseen function in the family. Families with obese children who have trouble leaving home, developing independence, or participating in outside activities are suggestive of family enmeshment and overprotectiveness (Banis et al., 1988; Beck & Terry, 1985; Bruch, 1973; Hammar, et al., 1972; Harkaway, 1986). Parental overcontrol (Johnson & Birch, 1994) and an abundance of rules (Banis et al., 1988; Beck & Terry, 1985) could also be indicative of overprotectiveness. Further, excessive rules could indicate rigidity or could be an attempt to compensate for an inability to resolve conflict. Problems with conflict resolution in obese families have been suggested by several studies (Beck & Terry, 1985; Bullen et al., 1964; Hammar et al., 1972; Harkaway, 1986; Kinston, Loader, Miller, & Rein, 1988). There is evidence to suggest conflict resolution problems in marriages of obese people as well (Doherty & Harkaway, 1990; Hollis, 1985; Prest & Storm, 1988; Rand et al., 1982; Stuart & Jacobson, 1988). Kalucy and

Crisp (1974) have found surgical patients' spouses to gain weight after patients' surgeries suggesting the need for a symptom in the family.

Conceptual Framework of Current Study

Differentiation. Although there is support in the literature for the Psychosomatic Family Model, there are some areas of confusion. Some of the aforementioned studies support the idea of rigid enmeshment in obese families. Other studies suggest obese families are poorly unified with low levels of family commitment compared to control families (Banis et al., 1988; Beck & Terry, 1985; Bullen et al., 1964) and characterized by chaotic, less unanimous decision-making (Bromberg, 1977). On the surface it would be easy to view rigid enmeshment as the opposite of poorly unified chaos, but it may be more accurate to view the two conditions as two sides of the same coin because both conditions are outside the realm of optimal family functioning. This apparent contradiction in the literature perhaps can be best explained with Bowen's (1976; 1978) concept of self-differentiation. It has been suggested that Minuchin's concepts of enmeshment and disengagement (i e., "poorly unified") "may in fact be two manifestations of the same principle (lack of differentiation) rather than qualitatively different principles or polar opposites" (Hansen & L'Abate, 1982).

According to Bowen (1976; 1978), differentiation is a growth process. Bowen has proposed a continuum of self-differentiation with low levels of differentiation being referred to as fusion. Fusion is characterized by a lack of distinction between emotional and intellectual functioning. People who are poorly differentiated react out of emotion rather than from a set of consciously formulated personal beliefs. They are more focused on and influenced by other people than their own life goals and principles. These people

are not unlike what is now commonly referred to as codependents (Prest & Protinsky, 1993). In contrast, the well-differentiated person can base decisions and responses to situations on an individually developed set of values. The more differentiated a person is, the healthier he or she is; in like manner, healthy families are comprised of well differentiated members. Bowen's framework takes into consideration the multigenerational nature of differentiation. Similar levels of differentiation are believed to occur among spouses and are handed down from generation to generation. Departure from the family of origin is seen as relevant (Bowen, 1976); children who cut themselves off from their families of origin (by shutting down or running away) are in fact still quite emotionally connected to their families. When real differentiation has occurred, there is no need to be cut off from one's family. Findings in the literature of overprotectiveness, enmeshment, and poor unification are all consistent with Bowen's concept of fusion.

Intimacy. Intimacy has been defined in several ways. Three general components of intimacy described by Helgeson, Shaver, and Dyer (1987) are self disclosure, affection, and expressiveness. In one review of intimacy definitions, three themes emerged: closeness and interdependence, the extent of self-disclosure, and the expression of warmth/affection (Perlman & Fehr, 1987). Camarena, Sarigiani, and Peterson (1990) have proposed that intimacy can best be described as emotional closeness; they discourage defining intimacy as the behaviors used to create it (e g., self-disclosure). McAdams (1985) has developed a motivational theory of intimacy that proposes that individuals experience two basic needs in regard to significant relationships: to feel close to others and to have an impact on others. The development of intimacy is the sixth stage of Erikson's (1959) psychosocial model of individual development. According to this

model, intimacy is primarily the ability to experience love in relationships.

There is evidence in the obesity family research to suggest that intimacy is related to overeating and overweight in families. Families with an obese child have been found to have trouble expressing their feelings and tend to hide their needs and problems (low self-disclosure) (Kinston, Loader, & Miller, 1988). Overeating for many is a means of diffusing or avoiding, rather than expressing, feelings (Ganley, 1986; Stuart & Jacobson, 1987). This is consistent with low levels of assertiveness among obese people and increased levels of assertiveness in post-treatment women (e.g., Crisp et al., 1977). It is also consistent with the finding that girls who were encouraged to speak up in family decision-making had lower levels of obesity than girls whose opinions were not considered (e.g., Bromberg, 1977). It is reasonable to assume that warmth, affection, and self-disclosure in the family or marriage are limited to whatever extent there is unresolved conflict.

Triangulation. Triangulation is a concept described by both Minuchin (1978) and Bowen (1976); it is also a concept that has received little, if any, attention in the obesity research. According to Bowen, twosomes can be comfortably close when there is no tension; however, when tension or anxiety escalates, a vulnerable third party is recruited to form a triangle. This third party can be a nuclear family member, an extended family member, friends, or social agency workers. Frequently the triangle consists of two parents and one child, with one of the parents being aligned with the child. Harkaway's (1986) finding of the obese child being aligned with the obese parent is suggestive of a family triangle. This study was limited by the fact that the sample consisted of 5 treatment-seeking families; however, she did find the obese child/obese parent alliance in

all five of the families. The marital hostility, parental criticism of the child (Kinston, Loader, Miller, & Rein, 1988), and parental scapegoating of the child (Hammar et al., 1972) are also suggestive of the presence of triangulation in obese families. Perhaps it is safe to assume that the likelihood of triangulation increases to the extent that there are problems with conflict resolution in a marriage/family.

Sexuality. In many ways sexuality is an extension of and expression of emotional intimacy in a relationship. In Helgeson, Shaver, and Dyer's (1987) identification of intimacy components, the affection component includes sexual expression. Erikson (1959) identifies that sexuality is one component of intimacy. Others have found people to identify sexual contact as part of what they believe intimacy is (Roscoe, Kennedy, & Pope, 1987; Waring, Tillman, Frelick, Russell, & Weisz, 1980). Males and females appear to have different priorities in regard to what component of intimacy they most value. Males most often mention sexual/physical interaction in their definition of intimacy and females most often mention openness (Roscoe, Kennedy, & Pope, 1987).

Within the marital dyad, obesity can serve as a regulator of certain aspects of the family system. Obesity helps to maintain boundaries by making infidelity and sexual advances from outsiders less likely for the obese person (Stuart & Jacobson, 1987). At the same time, staying thin for some people may be a means of decreasing the chance of a spouse's infidelity. Obesity may also be a means of power when there are sexual conflicts in the marriage. A spouse who is not getting emotional intimacy may punish the partner by becoming less sexually desirable (i e., fat). The spouse who has less interest in sex may use obesity as a means of reducing sexual contact. Further, the spouse who has more interest in sex may eat as a substitute for sex or as a means of self-comfort when

feeling rejected. Becoming fat may be a way to justify to oneself why the partner is rejecting (Stuart & Jacobson, 1987).

Feeding and Mealtime Behaviors. Childhood mealtime experiences of bulimics have been found to differ from nonbulimics. Childhood mealtimes for bulimics have been characterized by: high levels of conflict/stress; use of food as a reward, punishment, manipulation, or consolation; parent-dominated conversations; and discussions of weight/appearance. When the child did not like the food prepared by the mother, there was a tendency for the child to feel guilty and the mother to feel hurt. For these families, mealtime was often the only time the family was all together (Miller, McCluskey-Fawcett, & Irving, 1993). This research is suggestive of a link between early childhood mealtime experiences and later eating dysfunction. If early mealtime experiences are correlated with later bulimia, could they also in part be correlated with obesity?

Research regarding feeding practices does suggest a connection between obesity and certain mealtime practices. Parental overcontrol of children's eating leads to children's inability to listen to their own internal cues to eat (Birch & Fisher, 1998) which can lead to children's overweight (Klesges, Malott, Boschee, & Weber, 1986). These patterns are suggestive of the overprotection and problems with autonomy that have been identified in obese families (Banis et al., 1988; Bruch, 1973; Harkaway, 1986; Loader, 1985). Parents' unwillingness to respect children's refusals of food (Klesges, Coates, & Brown, 1983) is not unlike parents' unwillingness to include their obese children in family decision making (e.g., Bromberg, 1977) or parents' insistence on many rules (e.g., Beck & Terry, 1985). Mothers and their overweight children have been found to eat more, eat faster, and talk to each other less in a lunchtime situation when compared to normal weight

children and their mothers (Birch, Marlin, Kramer, & Peyer). This is perhaps suggestive of the lower levels of sociability found in families with an obese child (Bullen et al., 1964). While similarities can be drawn between obese family interaction and mealtime interaction, it is not certain that these feeding patterns are necessarily a reflection of the overall family interaction. Parents who are controlling feeders may not be controlling parents in general; rather, they may simply be uninformed in regard to more effective feeding practices (Birch & Fisher, 1998).

External Eating. These recent studies regarding parental overcontrol in feeding are suggestive of Schachter's (1968) concept of external eating which is eating in response to external cues rather than internal physiological cues (i.e., hunger). External cues could include certain sights, smells, sounds, places, or times of day (Schachter, 1971). It seems likely that if parental overcontrol leads to children's lowered sensitivity to internal cues (Birch & Fisher, 1998), the desensitization could continue into adulthood; the effect would be a higher rate of external eating for those who have been desensitized to internal cues. When eating is no longer equated with hunger, food is apt to take on new meanings. Without even realizing it, parents have the ability to transform food into symbols for children. Rubin (1978) suggests the following:

> Very often, the degree of emotional sickness is directly proportional to the degree of symbolization. The more disturbed the individual has become over the years, the more symbolic and bizarre food and eating representations tend to become. Food-oriented parents unwittingly *reward* their children with food (sweets); *punish* their children with food (withdrawing sweets); *admire* their children with food ("That's a good boy, you eat so well"); *frighten* their children with food ("If you don't eat enough, you'll get sick."; "Not enough milk, your teeth will fall out"); *teach* their children with food (If you have two apples and three pears..."). (p. 45)

It makes sense to surmise that external eating in adult life could be directly related to the

symbolic use of food in childhood.

Binge Eating. Binge eaters have been found to differ from nonbingers in several ways. Marcus, et al. (1990) studied the psychiatric status of obese binge eaters and nonbinge eaters; clinical evaluations were conducted by clinicians who were blind to the subjects' binge status. Sixty percent of binge eaters met the criteria for a psychiatric diagnosis while only 28% of nonbinge eaters did. Differences were most pronounced with regard to the rates of affective disorders which were 32% (bingers) and 8% (nonbingers). Obese binge eaters have been compared to binge-purgers and to obese nonbingers by using the Minnesota Multiphasic Personality Inventory (MMPI). Obese bingers were found to be significantly different from obese nonbingers on 10 of 13 scales and different from binge-purgers on 4 of 13 scales. The authors conclude that the three groups represent three separate populations with obese nonbingers being least psychologically impaired and purgers most impaired (Kirkley, Kolotkin, Hernandez, & Gallagher, 1992). The high incidence of psychological problems in binge eaters is suggestive of histories of family dysfunction. However, very little family research has been conducted in regard to binge eaters, compared to the large amount of research concerning people with bulimia nervosa. Kanter, Williams, and Cummings (1992) have found obese binge eaters to have significantly higher rates of alcohol abuse, parental alcohol abuse, and victimization than obese nonbingers. In like manner, Yanovski, Nelson, Dubbert, and Spitzer (1993) individuals diagnosed with Binge Eating Disorder to have higher family history of substance abuse and personal history of sexual abuse than nonbinge eating obese individuals. Family variables were also considered by Friedman, Wilfley, Welch, and Kunce (1997) who found higher rates of family dysfunction, familial

psychopathology, and history of abuse in obese binge eaters compared to obese nonbingers.

Restrained Eating and Emotional Eating. Dietary restraint refers to the conscious attempt to reduce food consumption for the purpose of losing or maintaining weight (Herman & Polivy, 1980). It is also said to be characterized by chronic weight concerns, weight fluctuations, and dietary disinhibition in circumstances that interfere with self-control (Ruderman, 1986). Streigel-Moore, Silberstein, Frensch, and Rodin (1989) have discussed eating problems on a continuum that has normal eating and unconcern for weight on one end and bulimia on the other end; in the middle of the continuum is what is referred to as a "normative discontent" with weight characterized by moderately disregulated/restrained eating. Steiger, Puentes-Neuman, and Leung (1991) have found restrictive eating to be associated with perfectionism in otherwise non-eating disordered adolescent girls. Garner, Olmstead, Polivy, and Garfinkel (1984) have found weight preoccupied women to have lower levels of effectiveness than women who were not preoccupied. Others have found restrained/binge eaters to be more depressed than unrestrained/nonbingers (Edwards & Nagelberg, 1986). In terms of family variables related to restraint there have been few studies. Ganley (1992) found obese restrained eaters to have more disengaged and rigid families than nonrestrained obese women; further, the restrained eaters were characterized by lower levels of spousal regard. Ruderman (1986) suggests in his review of the restraint model that "differences in level of restraint underlie obese-normal differences in behavior" (p. 249).

Binge eating, restrained eating, and emotional eating have all been suggested as subgroups of obese people (Faith, Allison, & Gelieber, 1997). While binge eating and

the disinhibition phase of the restraint cycle can include emotional eating, emotional eating does not necessarily include bingeing or restraint (Wilson, Nonas, & Rosenblum, 1993). Behaviorists (e.g., Freed, 1947) and psychoanalysts (e.g., Bruch, 1973) have maintained the presence of emotional eating among obese people. In his review, Ganley (1989) concludes that emotional eating is more common in obese people than nonobese. Given that high levels of family dysfunction lead to negative emotions, it seems reasonable to assume that family interaction could be related to the degree to which emotional eating occurs in an individual. Ganley (1992) found nonobese restrained eaters to be more similar to obese restrained eaters than to nonrestrained, nonobese subjects in terms of family and personality traits. Further, the restrained groups (obese and not obese) were similar in their high degree of emotional eating while the nonrestrained groups were similar in their low degree of emotional eating. This suggests that eating styles differentiate subjects more accurately than the presence or absence of obesity.

Purpose of Current Study and Research Questions

Obesity is a heterogeneous condition that causes serious health problems. It is important to have a better understanding of the causes of obesity in order to prevent illness. While researchers continue to study the genetic causes and preconditions of obesity, it is necessary to continue to try to understand the factors involved in obesity that are not genetic. The purpose of the current study was to add to and clarify existing research by investigating possible correlations between certain family system variables and overeating styles and overweight. Specifically, the purpose was to examine the following variables in adults: differentiation, intimacy, and triangulation in the current

families and families of origin; current attitudes toward sex; and food/mealtime experiences in the family of origin. These variables will be examined in terms of their relationship to BMI and certain dysfunctional eating styles that often lead to obesity (binge eating, restrained eating, and emotional eating). The following research questions are asked:

Do people with higher BMIs differ from those with lower BMIs in regard to the differentiation, intimacy, triangulation, and mealtime interaction they experienced in their families of origin?

Do people with higher BMIs differ from those with lower BMIs in regard to the differentiation, intimacy, triangulation, and sexual attitudes in their current marriages and/or families?

Do the family variables differentiate between restrained and nonrestrained eaters?

Do the family variables differentiate between binge eaters and nonbingers?

Do the family variables differentiate between emotional eaters and those low in emotional eating?

Do the family variables differentiate between external eaters and those low in external eating?

Are family systems variables more highly correlated with problematic eating patterns or with BMI?

Are childhood feeding/mealtime patterns significantly related to external eating, emotional eating, binge eating, and restrained eating?

Are childhood feeding/mealtime patterns significantly related to respondents' perceptions of their childhood weights?

CHAPTER III
Methodology

Sample

One goal in the current study was to use a diverse sample from the general population rather than a sample of treatment-seeking subjects. This was important because treatment seekers are believed to differ from the general population in terms of their levels of psychopathology (Foster & Wadden, 1994). Further, it was an important part of adding to the current literature; studies of obese people in the general population have been rare. People of all weights were included to assess differences between people with higher BMIs and people with lower BMIs and to study different eating problems across all weight levels. Thus, after obtaining approval from the Institutional Review Board (Appendix A), adult subjects were recruited from the faculty and staff of a county school system in Western Virginia which is comprised of ten schools and over 500 employees. It was believed that this county and this work site are fairly diverse. It was expected that respondents could range in age from 18-65. It was also expected that the sample would likely include teachers, principals, custodians, bus drivers, cooks and clerical staff.

Procedures

A request was made to the superintendent of schools to recruit school system employees as the sample for this study (Appendix B). After obtaining permission from the school board, the superintendent gave notice that data collection could proceed. He recommended that the best way to proceed was by contacting each school principal individually. Thus, the principal of each school was contacted to plan survey distribution. Permission to distribute surveys at school staff meetings was requested from

each principal. All 10 principals gave their permission. Further, principals were asked to consider allowing time during the staff meeting for participants to take the survey on site. Two principals allowed for on-site data collection; the other principals cited a lack of staff meeting time as a reason for not allowing surveys to be completed during meetings.

At all staff meetings, the study was explained in general terms; the purpose of the study was described as an assessment of eating styles and family interaction. No mention was made of obesity, eating dysfunction, or family dysfunction to avoid fake-good responses from people who would not want to be associated with personal problems. Staff members were advised of the strict code of confidentiality and were given a chance to ask questions. Further, staff members were reminded that participation was voluntary. They were also informed that all participants could be entered in a drawing (one drawing per school or office) as an incentive to participate and that the winner would receive a $20 gift certificate from one of three area department stores. Participants were told that they could be entered in the drawing by filling out a provided slip of paper that asked for home phone number and name of school. Phone numbers were requested so that winners could be notified of their winnings, and school names were requested so that entry slips could be entered in the correct drawings. Participants were advised that the collection of phone numbers was for the purpose of informing them that they were winners of the drawing.

At the two schools where on-site collection was allowed, informed consent letters (Appendix C), surveys (Appendix D), envelopes, and drawing entry slips were distributed to staff members at the beginning of their inservice teacher workday. They were asked to fill out the surveys and sign the consent letters sometime during the day. They were then

asked to put surveys and letters in separate sealed envelopes and return them to a box that was provided in the school office. They were instructed to include their drawing entry slips in the survey envelope if they wanted to be included in the drawing. At the end of the work day, staff members reconvened for the final joint meeting; the drawing was conducted and the winners were given their prizes.

At the remaining eight schools, on-site collection was not feasible. At these schools, employees who indicated a willingness to participate were given surveys, consent letters, self-addressed stamped envelopes, and drawing entry slips. The consent letter explained the purpose of the study, gave an assurance of confidentiality, and gave a phone number to call in the event that the participant had any questions regarding the survey. Participants were asked to return the surveys and consent letters in separate envelopes within ten days. Two weeks after survey distribution at a school, all drawing entry slips from that school were put in an envelope and one winner was drawn randomly. The winner was notified by phone, using the phone number on the entry slip. The person who answered the phone was asked, "May I please speak to the school system employee?". When the employee was on the line, he or she was notified of his/her winning status and asked to where the prize should be mailed.

A number of employees were not included in staff meetings (e.g., cafeteria workers, bus drivers, custodians). Surveys were given to these staff members through the principals who took responsibility for their distribution. In addition to the 10 schools, surveys were also distributed at the school system's technical center and the school board office. Surveys at these two cites were distributed by office staff members. All surveys distributed by a third party included the cover letter, envelopes, consent forms,

and drawing entry slips. A total of 536 surveys were distributed and 237 had been returned by 5 weeks after the final distribution (44% return rate).

Survey

The first page of the survey consisted of demographic questions and questions related to weight and weight history. The participants were asked to report their weights and heights in order to calculate their Body Mass Index (BMI); self-reported weights have been found to be highly correlated with actual weights (Stunkard & Albaum, 1981). The BMI is determined by dividing one's weight (in kilograms) by height (in meters) squared (Bray, 1986). While body fat percentage is considered to be the most relevant measure of body fat, it was an impractical measure for the purposes of this study. The correlation between BMI and more precise laboratory measures of body fat has been found to range from .7 to .8 (Bray, 1986). Women who were pregnant or had given birth in the past six months were asked to report their prepregnancy weights. They were asked to identify any ages in childhood that they were overweight and to estimate the degree of overweight (e g., mild, moderate, or very overweight) that they experienced at that time; they were asked to describe their children's weights in like manner. The survey further included questions related to childhood eating experiences and questions modified from three instruments: the PAFS-Q (Personal Authority in the Family Questionnaire), the DEBQ (Dutch Eating Behavior Questionnaire), and the Binge Scale Questionnaire. These scales were modified in hopes of maximizing the survey return rate. Authors of instruments were contacted and permission for instrument use was obtained (Appendix E). Finally, surveys included two statements that described opinions about the relationship between sex and weight and respondents were asked to identify the degree to

which they agreed with the statements by means of a Likert-type scale.

Instruments

PAFS-Q. The PAFS-Q (Bray, Williamson, & Malone, 1984a) is a self-report measure designed to assess significant relationships in the three-generation family system, based in part on Bowen's (1978) intergenerational family theory. "Personal Authority in the Family System" is a concept created to describe a life cycle stage. Specifically, it is operationally defined as one's ability to do the following: to be in charge of one's own thoughts and opinions and choose whether or not to express them regardless of external pressures; to make and respect one's own judgements and feel justified in acting on them; to take responsibility for actions taken; to establish personal boundaries that allow one to have one's preferred level of intimacy; to relate to all people (including parents) as peers in the human experience (Williamson, 1982) The PAFS-Q (Appendix F) is a 132-item scale that is comprised of eight non-overlapping subscales: "spousal fusion/individuation"; "intergenerational fusion/individuation"; "spousal intimacy"; "intergenerational intimacy"; "nuclear family triangulation"; "intergenerational triangulation"; "intergenerational intimidation"; and "personal authority" (Bray, Williamson, & Malone, 1984a). The intergenerational subscales assess the respondent's relationship with her parents, with a separate assessment for mother and father. The spousal subscales are answered only by respondents with a significant other, and the nuclear family subscale is answered only by respondents with children. "Personal authority" is a subscale with items that "reflect topics of conversation which require an intimate interaction with a parent, while maintaining an individuated stance" (p. 4). All subscales are comprised of items that are rated on a 5-point Likert scale. The questions

from the PAFS-Q that were used in the current study were drawn from the first six of the eight subscales as they were the most relevant to the research questions.

Bray, Williamson, and Malone (1984a; 1984b) conducted two studies to assess the reliability and validity of the PAFS-Q. Internal reliability coefficients for the individual subscales ranged from .80 to .95, with a mean of .89. Test-retest reliability for the subscales ranged from .55 to .95, with a mean of .74. The author states that all test-retest coefficients are within an acceptable range except the Intergenerational Fusion/Individuation scale; anecdotal information from subjects suggests that taking this scale acts as an intervention that changes their perceptions of their parents. Factor analyses were conducted to test and refine construct validity and the result is an instrument with 8 distinct subscales; all coefficients were found to be in an acceptable range (Bray, Williamson, & Malone, 1984a; 1984b).

The PAFS-Q has been used in a number of ways. It has been used to explore the relationship of generational boundary dissolution to identity development in young women. Young women who experienced high levels of intimacy and individuation were found to have better developed friendships or dating relations (Fullinwider-Bush & Jacobvitz, 1993). The instrument has been used to help identify problems related to recovery from post-traumatic stress following an abortion (Bagarozzi, 1994). Henry and Hampton (1992) have used the PAFS-Q to study the relationship between parental gender role orientation and individuation of young adult children; children with two androgynous parents were found to be significantly more differentiated from their parents than children who had two traditional parents. Lawson, Gaushell, and Karst (1993) have tested Williamson's (1982) suggestion that personal authority in the family system is

rarely achieved before one is in his/her 30s; support was found for this idea in that respondents under thirty were found to be significantly different from respondents over thirty. Johnson, Wilkinson, and McNeil (1995) have found parental divorce to have a negative impact on adult children's development. Day, St. Clair, and Marshall (1997) have used the PAFS-Q to test Bowen's (1978) hypothesis that people marry individuals who are at comparable levels of differentiation; the authors reported finding little support for the hypothesis. The PAFS-Q has been used by Sandifer-Stech and Mancini (1998) to study the relationship between intergenerational family systems variables and the career development processes of older adolescents. Finally, Bromley and Blieszner (1997) used the instrument to find personal authority to be helpful in discussions related to long-term care plans of their parents.

DEBQ. The Dutch Eating Behavior Questionnaire (DEBQ) (Van Strien, Frijters, Bergers, & Defares, 1986) is a 33 item scale consisting of three separate factors (Appendix G). The first factor is restrained eating; this scale has items related to deliberate, planned weight control. The second factor is emotional eating; this scale has items concern increased eating in situations of feelings such as boredom or irritation. The emotional eating scale contains 2 parts: items related to diffuse emotions and items related to specific emotions; these can be scored as one or two scales. The third factor is external eating; this scale contains items that refer to eating that is triggered by sight, smell, or the presence of others eating. All items consist of statements to which subjects make a frequency rating; responses are on a Likert type scale ranging from never to very often.

The internal reliability of each scale has been found to be as follows: restraint

scale, .95; combined emotional eating, .94; diffuse emotions, .93; specific emotions, .86; and external eating, .80 (Van Strien, Frijters, Bergers, et al., 1986). Test-retest reliability has been found to be .92 (after 2 week span) for the restraint scale only (Allison, Kalinsky, & Gorman, 1992). Gorman and Allison (1995) report being unaware of any other test-retest reliability measures. The factor structure has been assessed to be stable (Van Strien, Frijters, Bergers, et al., 1986; Wardle, 1987).

Wardle (1987) has addressed the validity of the instrument in a study of students, Weight Watcher attendees, bulimia patients, and anorectic patients. The three clinical groups were comparable on the restraint measure, with all three groups showing higher restraint than controls. Bulimic patients showed more external eating than the other clinical groups while anorectics showed significantly lower levels of external eating than controls. The groups from highest to lowest levels of emotional eating were bulimics, obese, normals, and anorectics. Blair, Lewis, and Booth (1990) studied adults who were beginning weight loss attempts. They found the baseline emotional eating scores to correlated with baseline BMI. Further, they found final emotional eating scores to be negatively correlated with weight loss, regardless of baseline scores. Van Strien, Frijters, Staveren, Defares, and Deurenberg (1986) studied 110 women by having dietitians make unannounced home visits. They found that the restraint scale scores were significantly correlated with lower levels of food intake. Allison and Heshka (1993b) have compared DEBQ scores with two social desirability scales. While there was no correlation between DEBQ scores and one of the measures, the other social desirability scale had a .5 correlation with DEBQ scores. They have also suggested that subjects could easily "fake good" and "fake bad" on the emotional eating scale. Hill, Weaver, and Blundell (1991)

have found sweet craving to be significantly associated with the external and emotional eating scores.

Binge Scale Questionnaire. The Binge Scale Questionnaire (Hawkins & Clement, 1980) is a nine-item multiple choice scale that assesses attitudes and behaviors related to binge eating (Appendix H). The scale provides one global measure of severity of problem and does not address specifics such as binge food quantities; the scale is not intended to be used for assessing specific diagnostic criteria. Thus, the scale's advantage is its use as a brief screening instrument that produces a general assessment of bingeing. This measure will be used in the proposed study because it treats bingeing as a continuous variable, rather than a dichotomous variable (e.g., meeting the DSM-IV criteria for Binge Eating Disorder or not). This seems appropriate in light of anecdotal information which suggests that bingeing can be a troublesome problem that contributes to distress and overweight even if it does not occur with the frequency or food quantities necessary to meet the DSM-IV criteria (D. Barnes, personal communication, March, 1999; D. L. Miller, personal communication, March, 1999; Stuart & Jacobson, 1987). Further, obese binge eaters themselves have been found to consider food quantity as less relevant to the binge definition than the subjective experience of loss of control (Telch, Pratt, Niego, 1998).

Internal reliability has been assessed to be .68, and test-retest reliability (after one month) has been found to be .88 (Hawkins & Clement, 1980). While the scale is intended to be used to obtain one global scale, a factor analysis did identify two main factors: guilt/ concern about bingeing and behavioral aspects of bingeing (Hawkins & Clement, 1980). The Binge Scale Questionnaire has been found to be a useful screening

instrument for identifying subclinical bingers, situational bingers, and people with bulimia nervosa (Katzman & Wolchik, 1984; Ordman & Kirschenbaum, 1985; Yates & Sambrailo, 1984). It has also been used to assess treatment response of bingeing patients (Ordman & Kirschenbaum, 1985).

Childhood feeding questions. An additional set of questions regarding childhood feeding practices and the symbolic use of food was also included in the survey. These questions are modified from questions used by Rogers (1977) and are intended to assess the degree to which food is or has been used as a reward, consolation, expression of love, or means of discipline (Appendix I). Questions of this sort will allow exploration of the possible connection between childhood feeding practices and adult eating patterns and weight. For example, is there a connection between being consoled with food as a child and emotional eating in adulthood? These feeding questions will also be useful in determining if food is one of the arenas in which family dysfunction is exhibited. For example, when the parent/child relationship is poorly differentiated, is there greater coersion in the parent's feeding of the child? Further, when a child is triangulated into the parents' marriage, are child feeding practices one of the things about which parents fight? In addition to assessing the symbolic uses of food, the child feeding questions in this survey have been tailored to explore the family systems variables that are measured by the PAFS-Q. For example, agreeing strongly with "It hurts my feelings when my child doesn't like the food I've prepared" could indicate a low level of differentiation with one's child. The family literature suggests correlations between family variables (e g., intimacy, conflict, differentiation) and obesity; perhaps child feeding practices are a link that can provide a partial explanation of how family function is related to obesity and

eating problems. The child feeding questions assess the subject's childhood experiences with food as well as her current use of food with her own children.

In order to minimize the number of independent variables in the study, some of the feeding questions were clumped together as one variable according to their content similarity. Three questions were put together to form the variable "Coersive Use of Food"; another three questions were put together to form the variable "Expression of Love through Food"; finally, two questions were put together to form the variable "Feeding Enmeshment". These three variables were included in the family of origin feeding questions and in the procreative feeding questions. Three other questions were included individually in the family of origin questions, and two additional questions were included individually in the procreative family feeding questions (see Appendix I).

Sexual attitude questions. Two additional questions were included in the survey to assess possible connections between sexuality and eating. The first question was "If I were to become thinner, my mate may want to have sex more often than I do". The second question was "If my mate were more affectionate, I would eat less". Both questions were answered by a Likert scale (see Appendix J). These questions were included among the PAFS-Q questions and respondents were to answer if the questions were relevant to them (i.e., they had a spouse or significant other).

Encoding questions. Most questions in the survey asked for Likert type responses. A number of the surveys were returned with more than one number circled for an answer. If a response had two separate numbers circled (i.e., the "2" and the "5" were both circled individually), the response was considered an error and no response was included in the data. If, however, two adjoining numbers were both circled (i.e., the "3"

and the “4” had one circle around them), this was interpreted as the respondents way of submitting a response that was in between two choices given and was coded in the data as such (i.e., included in the data as “3.5”).

CHAPTER IV
Results

The primary purpose of this study was to determine whether or not several family system variables are predictive of BMI and particular dysfunctional eating styles. In keeping with the psychosomatic family model (Framo, 1970; Minuchin, et al., 1975), high BMI scores and problematic eating patterns were viewed as symptoms of family dysfunction for the purposes of this study. Thus, BMI and problematic eating were the dependent variables in the analysis of data. The independent variables, or predictors of BMI and problematic eating, were the family systems variables: spousal and intergenerational individuation, spousal and intergenerational intimacy, nuclear and intergenerational triangulation, sexual attitudes, and feeding practices experienced in childhood. Variables were entered into regression models as the primary means of analysis in this study. This chapter presents the results of the data analysis for each research question, as well as descriptive data regarding the respondents.

Description of the Sample

Of the 536 surveys that were distributed, 237 were returned, resulting in a 44% return rate. For the most part, respondents were white (94.6%), college educated (81.4%), professional (82.9%) women (86.8%) with a mean age of 44.05 (SD = 10.22). A more detailed description of the sample is presented in Table 1. Demographic information about the non-respondents was not available for comparison. Not all questions were answered by all respondents; the number of respondents (N) who answered a particular question are indicated on Table 1. In regard to Body Mass Index, the sample ranged from 17.79 to 47.07 (N = 223) , with a mean BMI of 25.72 (SD = 5).

Table 1
Demographic Characteristics of Respondents

Characteristic	Category	Number	Percentage
Gender	Males	31	13.2
N = 235	Females	204	86.8
Age	Under 20	1	.4
N = 234	20 – 29	30	12.8
	30 – 39	40	17.1
	40 – 49	82	35.1
	50 – 59	69	29.5
	60 and above	12	5.1
Marital Status	Single	50	21.1
N = 237	Married	187	78.9
Race	Caucasian	212	94.6
N = 224	African American	10	4.5
	Other	2	.9
Job Position	Administrator/Principal/Teacher/		
N = 234	Counselor/ Librarian/Nurse	194	82.9
	Clerical/Teacher's Aide	28	12.0
	Custodian/Maintenance/Cafeteria/Bus Driver	12	5.1
Annual Household	Under $20,000	4	1.9
Income	$20,000 -- $29,999	12	5.6
N = 214	$30,000 -- $39,999	24	11.2
	$40,000 -- $49,999	21	9.8
	$50,000 -- $59,999	22	10.3
	$60,000 -- $69,999	36	16.8
	$70,000 -- $79,999	26	12.2
	$80,000 -- $89,999	27	12.6
	$90,000 -- $99,999	18	8.4
	$100,000 or more	24	11.2
Educational Level	Less than High School Graduate	2	.8
N = 236	High School Diploma or GED	22	9.4
	Some College	20	8.4
	Bachelors Degree	66	28.0
	Some Graduate School	41	17.4
	Graduate Degree	85	36.0
Number of Children	No Children	63	26.6
N = 237	One Child	50	21.1
	Two Children	90	38.0
	Three Children	27	11.4
	Four or More Children	7	3.0

Women (n = 194) had a mean BMI of 25.52 (SD = 5.02), while men (n = 29) had a mean BMI of 27.12 (SD = 4.73). Using the standards described by Najjar and Rowland (1987), women were found to be as follows: 69.1% were normal weight; 21.1% were somewhat overweight; 9.8 were severely overweight. Using the same standards, men were found to be as follows: 65.5% were normal weight; 13.8% were somewhat overweight; 20.7 were

severely overweight.

Although studies that have compared obesity in men and women have generally found more obesity among women, in this study a greater percentage of men were overweight than women. However, the correlation between BMI and gender was not statistically significant. Moreover, the correlations between BMI and race, marital status, and annual household income were also not significant at the .05 level. Body Mass Index was found to be correlated significantly with age ($\underline{r}$ = .27, $\underline{p}$ =.000) and with job position ($\underline{r}$ = .14, $\underline{p}$ < .035). Younger people and professional people (e.g., teachers, principals) were found to be less likely to be overweight than older subjects and blue-collar workers (e.g., custodians, cafeteria workers). Consistent with that finding is the negative, though not significant, correlation between BMI and educational attainment($\underline{r}$ = -.12, $\underline{p}$ < .065). Lower BMI scores tended to be associated with higher levels of education. BMI was calculated by dividing one's weight (in kilograms) by height (in meters) squared (Bray, 1986).

Independent Variables

Six subscales regarding family functioning were drawn from six PAFS-Q Subscales (Bray, Williamson, & Malone, 1984). The Cronbach's Alpha ($\underline{r}_{xx}$) was calculated for each new subscale. See Appendix F for the complete instrument and identification of the specific questions that were used in this study. All items were answered on a 5-point Likert type scale; high numbers were indicative of good family functioning while low scores were associated with the presence of dysfunction. The subscale "Intergeneration Intimacy" that was developed for this study consisted of 15 items ($\underline{r}_{xx}$ = .82) related to intimacy in the family of origin. High scores on this subscale

would indicate strong feelings of closeness with one's parents. The subscale "Intergenerational Differentiation" consisted of five items ($\underline{r}_{xx}$ = .60) related to individuation from the family of origin. High scores on this subscale would indicate appropriate boundaries with one's parents. "Intergenerational Triangulation" consisted of five items related to triangulation in one's family of origin. High scores on this subscale would indicate *low* levels of triangulation with one's parents; therefore, for the purpose of the analyses, this scale is referred to as "Intergenerational Triangulation Health". "Spousal Intimacy" consisted of eight items ($\underline{r}_{xx}$ = .77) related to intimacy in one's marriage or partnership, while the "Spousal Differentiation" subscale consisted of 11 items ($\underline{r}_{xx}$ = .47) related to individuation in one's marriage or partnership. High scores on these subscales would indicate strong feelings of closeness and appropriate boundaries with one's significant other, respectively. The subscale called "Nuclear Triangulation" (eight items, $\underline{r}_{xx}$ = .72) pertained to triangulation in the family of procreation. High scores on this subscale would indicate a *low* level of triangulating one's children; therefore, this subscale is referred to as "Nuclear Triangulation Health" in the analyses reports. Subscale scores represented the mean of subscale question responses in order to make use of data from respondents who did not answer every question in the subscale. Therefore, the possible range for each subscale score is 1 through 5, and actual ranges are reported in Table 5 along with means and standard deviations. Correlations between these family variables were computed in order to have an understanding of how these variables are related to one another (see Table 2). To identify the PAFS-Q questions that were and were not used in this study, see Appendix F.

Table 2
Correlations (r) Among the Family Functioning Variables

	I.I.	I.D.	I.T.	S.I.	S.D.	N.T
Intergenerational Intimacy	1.00					
Intergenerational Differentiation	.45***	1.00				
Intergenerational Triangulation	.18**	.11	1.00			
Spousal Intimacy	.32***	.14*	.16*	1.00		
Spousal Differentiation	.15*	.22**	.16*	.39***	1.00	
Nuclear Triangulation	.29***	.19*	.01	.43***	.35***	1.00
Mean (SD)	3.89(.72)	3.72(.74)	3.29(.88)	3.84(.71)	3.53(.44)	3.84(.55)

*p< .05 **p< .01 ***p< .001

Additional independent variables were represented by questions related to the non-nutritional uses of food and the expression of family functioning through food. Eleven of these questions were in regard to the respondents' experiences in their families of origin. Ten similar questions were included that addressed respondents' uses of food in their relationships with their own children. These questions were answered separately for each child in order to explore the possibility that the use of food varies between children. All childhood feeding questions were answered by using a 5-point Likert-type scale. For the purpose of minimizing the number of independent variables in the regression analysis, some of the food-related questions were consolidated according to their content. The consolidated questions formed three variables: Coersive Use of Food, Expression of Love through Food, and Feeding Enmeshment which refers to the lack of differentiation between parent and child at mealtime. Two additional individual questions are referred to as Use of Food as a Reward and Parental Disagreement about Feeding. All feeding questions were coded such that the higher the score, the more food was used in a non-nutritional way or was related to family interaction. Appendix I lists all feeding questions and identifies how they were categorized, and Table 3 shows the

correlations among these feeding variables. Because some respondents did not answer every question in the subscale, subscale scores were computed based on the average response to the items that were answered. Accordingly, the possible range for subscale scores was 1 through 5; actual ranges are reported in Table 5, along with means and standard deviations.

Table 3
Correlations (r) Among the Childhood Feeding Variables (Regarding Respondents)

	Use of Food As a Reward	Parental Disagreement	Coersive Use of Food	Expression of Love	Feeding Enmeshment
Use of Food as a Reward	1.00				
Parental Disagreement About Feeding	.12	1.00			
Coersive Use of Food	.51***	.34***	1.00		
Expression of Love Through Food	.62***	.09	.42***	1.00	
Feeding Enmeshment	.09	.02	.16*	.22**	1.00
Means (SD)	2.19(1.05)	1.82(1.00)	1.58(.65)	2.38(.87)	2.46(.89)

*p < .05 **p < .01 ***p < .001

Two final independent variables were two 5-point Likert type questions regarding the possible relationship between eating and sexuality (Appendix J). The first question (labeled "Sexavoid") was "If I were to become thinner, my mate may want to have sex more often than I do". The other question (labeled "Deprived") was "If my mate were to be more affectionate, I would eat less". These questions used a 5-point Likert response scale and were coded such that high scores indicated strong agreement with the statement. Responses to these two questions were highly positively correlated ($r = .53$, $p = .000$). They were considered to be separate variables because the content suggests they measure two different experiences. The ranges, means, and standard deviations for these two questions are reported in Table 5.

In addition to the family variables, demographic variables were included in the analysis. Because age, gender, and socioeconomic status have been found to be highly correlated with weight (Goldblatt, Moore, & Stunkard, 1965; Stunkard, 1985), age,

gender, educational level, and annual household income were included in the analysis. Further, given the relationship-oriented focus of the study, marital status was included as one of the demographic variables. While race has been found to be significantly related to obesity (Kuczmarski, et al., 1994), it was omitted in the regression analyses due to the low number of nonwhite respondents (n = 12). The ranges, means, and standard deviations for the demographic variables used in the analyses are reported in Table 5.

Dependent Variables

There were five main dependent variables of concern in this study: Body Mass Index (BMI) of respondents, binge eating, restrained eating, emotional eating, and external eating behaviors of respondents. Respondents were asked to identify their heights and weights; the BMI was calculated by dividing the weight (in kilograms) by the height (in meters) squared. BMI was treated as a continuous variable. Restrained eating, emotional eating, and external eating were all measured by questions taken from the Dutch Eating Behavior Questionnaire (DEBQ) (Van Strien, Frijters, Bergers, & Defares, 1986). Four items regarding restraint were used in the survey (r_{xx} = .80), but only three of those items were used in the analysis (r_{xx} = .82). The item that was omitted was "If you have put on weight, do you eat less than you usually do?". This item was omitted because the lower response rate for the item and the comments respondents wrote on the surveys indicated it was a confusing question. Six items were used to measure emotional eating (r_{xx} = .95), and four items (r_{xx} = .80) made up the external eating subscale in this survey. All of these eating questions were answered by using a 5-point Likert type scale with high scores indicating high levels of that eating behavior. Appendix G provides the DEBQ in full with questions used in this study being identified. Respondents were given

a definition of binge eating and asked if they were binge eaters. For those who identified themselves as binge eaters (n = 70), binge eating was measured by questions taken from the Binge Scale Questionnaire (Hawkins & Clement, 1980). Seven multiple choice items were used (r_{xx} = .71). Scores were standardized before being averaged in order to compensate for the unequal number of response choices between questions and a score of zero was entered for those respondents who did not identify themselves as binge eaters. Table 3 illustrates the correlations between the dependent variables.

Table 4
Correlations (r) Between the Dependent Variables

	BMI	Restaint	Emotional	External	Binge
BMI	1.00				
Restraint	.06	1.00			
Emotional	.31***	.28***	1.00		
External	.06	.09	.49***	1.00	
Binge	.27***	.16*	.51***	.27***	1.00
Mean(SD)	25.72(5.00)	2.91(.92)	2.84(1.11)	3.36(.72)	1.67(2.72)

*p<.05 **p<.01 ***p<.001

Primary Analysis

Relationships Between the Independent and Dependent Variables. Pearson product-moment correlations (r) were calculated between all independent variables and the five dependent variables. The results of these calculations are reported in Table 5. Body Mass Index and restrained eating were not found to be significantly related to any of the family functioning variables. Emotional eating was found to be significantly negatively correlated with intergenerational differentiation (r = -.19, p = .003) and intergenerational intimacy (r = .16, p = 016). In other words, the respondents who were

Table 5

Description of the Independent Variables and their Relationships with the Dependent Variables

					Correlation (r) with Dependent Variable			
Variable	n	Range	Mean	SD	BMI	Restraint	Emotional Eating	External Eating	Binge Eating
FAMILY FUNCTIONING									
Intergenerational Intimacy	235	1.4-5.0	3.89	.72	-.05	-.06	-.16*	-.14*	-.18**
Intergenerational Differentiation	234	1.0-5.0	3.72	.74	-.05	-.06	-.19**	-.12	-.24***
Intergenerational Triangulation	227	1.0-5.0	3.29	.88	-.09	-.04	-.12	-.11	-.11
Spousal Intimacy	212	1.0-5.0	3.84	.71	-.02	-.07	-.09	-.14*	-.23**
Spousal Differentiation	211	2.36-5.0	3.53	.44	-.02	-.07	-.19**	-.20**	-.18**
Nuclear Triangulation Health	182	2.0-5.0	3.84	.55	-.03	-.01	-.24**	-.27***	-.19*
CHILDHOOD FEEDING									
Use of Food as a Reward	236	1.0-5.0	2.19	1.05	.00	-.03	.19**	.23***	.11
Parental Disagreement re Food	233	1.0-5.0	1.82	1.00	.03	.12	.17*	.15*	.20**
Coersive Use of Food	237	1.0-4.67	1.58	.65	.12	.08	.27**	.29***	.25***
Expression of Love Thru Food	237	1.0-5.0	2.38	.87	.05	-.01	.22**	.20**	.06
Feeding Enmeshment	237	1.0-5.0	2.46	.89	.19**	.02	.21**	.12	.14*
SEX RELATED QUESTIONS									
Sexavoid	204	1.0-5.0	3.65	1.18	.29***	.08	.31***	.27***	.25***
Deprived	205	1.0-5.0	3.96	1.08	.26***	.10	.32***	.18**	.31***
DEMOGRAPHICS									
Age	234	18-66	44.05	10.22	.27***	.09	-.01	-.10	.03
Gender (male = 1; female = 2)	235	1.0-2.0	1.87	.34	-.11	.19**	.18**	.01	.07
Educational Level	236	1.0-6.0	4.60	1.34	-.12	.12	.07	.11	-.03
Annual Household Income	214	4.8K-180K	64,941	27,702	-.06	.11	.04	.06	-.11
Marital Status (single = 1; married = 2)	237	1.0-2.0	1.79	.41	.07	.03	.09	.02	-.04

*$\underline{p} < .05$ **$\underline{p} < .01$ ***$\underline{p} < .001$

more individuated from and closer to their families of origin were less likely to engage in emotional eating than those who were more enmeshed with or distant from their families; those respondents were also less likely to binge eat (intergenerational intimacy, $\underline{r} = -.18$, $\underline{p} = .006$; intergenerational differentiation, $\underline{r} = -.24$, $\underline{p} = .000$). External eating was found to be significantly negatively correlated with intergenerational intimacy ($\underline{r} = .14$, $\underline{p} = .037$) and spousal intimacy ($\underline{r} = -.14$, $\underline{p} = .04$). Those respondents who experienced high levels of intimacy with their families of origin and their significant others tended to engage in low levels of external eating. High intimacy levels with one's significant other were also associated with lower levels of binge eating ($\underline{r} = -.23$, $\underline{p} = .001$). Nuclear family triangulation health was found to be significantly related to emotional eating ($\underline{r} = -.24$,

p = .001), external eating (r = -.27, p = .000), and binge eating (r = -.19, p = .011). Therefore, respondents who were prone to triangulate their children were more likely to engage in emotional, external, and binge eating behaviors than those who did not triangulate. Finally, spousal differentiation was found to be significantly negatively correlated with emotional eating (r = -.19, p = .005), external eating (r = -.20, p = .004), and binge eating (r = -.18, p = .007). This suggests that respondents who had healthy levels of individuation with their significant others were less likely to eat in response to emotion or external triggers, and were less likely to binge.

The childhood feeding subscales were also correlated with the dependent variables (see Table 5). While Body Mass Index was not found to be correlated significantly with Coersive Use of Food, it was found to be significantly correlated with one of the individual questions in that subscale: "When my parent wanted me to do something (such as a chore), s/he would promise me a snack when I did what s/he wanted me to." (r = .17, p = .012). In other words, heavier people in this sample were more likely than thinner people to have been promised food for completing a task. BMI was also significantly correlated with feeding enmeshment (r = .19, p = .005). Heavier respondents were less likely than thin respondents to have made their own decisions about food in childhood. There were no significant correlations between restraint and the childhood feeding questions. However, this was not the case for emotional eating and external eating. Emotional eating was found to be significantly correlated with use of food as a reward (r = .19, p = .003), parental disagreement about feeding(r = .17, p = .01), coersive use of food (r = .27, p = .000), expression of love through food(r = .22, p = .001), and feeding enmeshment (r = .21, p = .001). External eating was significantly

correlated to use of food as a reward (r = .23, p = .000), parental disagreement about feeding (r = .15, p = .027), coersive use of food (r = .29, p = .000), and expression of love through food (r = .20, p = .002). Binge eating was significantly correlated to parental disagreement about food (r = .20, p = .003), coersive use of food (r = .25, p = .000), and feeding enmeshment (r = .14, p = .038). These findings suggest that those respondents in this sample who were prone to emotional and external eating were more likely to have had parents who rewarded them with food and argued about what or how much they (the respondent) should eat as a child. Binge eaters were more apt to have parents who argued about their feeding as well. Emotional, external, and binge eaters' parents were more likely to have used food in a coercive manner. Parents of emotional and external eaters were prone to showing love with food. Finally, those respondents who were prone to emotional eating or binge eating were unlikely to have made their own decisions about food in childhood.

Questions #52 ("If I were to become thinner, my mate may want to have sex more often than I do") and #53 ("If my mate were to be more affectionate, I would eat less") were significantly positively correlated with BMI, emotional eating, external eating, and binge eating. This can be interpreted to suggest that respondents who were feeling deprived of affection and those who may be sexually avoidant were more inclined to be overweight and more prone to eating because of emotion or external triggers, or in a binge manner. It is important to note that it would be unwise to assume the direction of cause and effect in regard to these variables. While it is possible that respondents eat in response to sexual problems, it is also possible that their sexual problems are the result of being heavy or having eating problems. For example, a person who is heavy may be self-

conscious about his/her weight and avoid sex for that reason.

Results of Regression Analyses. For each dependent variable, a separate regression was run using a block entry hierarchical model with the following independent variables in each block: Block 1 contained the six PAFS-Q family variables and the two questions related to sexuality, block 2 contained the childhood feeding subscales, and block 3 contained the demographic variables. Hierarchical regression was used because it provided the best means of answering the research questions in this study. The research questions revolved around the family systems variables and the childhood feeding variables; thus, these variables were entered into blocks 1 and 2 of the model in order to determine the amount of variance that could be explained by each group of variables. The demographic variables were added last because they were not as pertinent to the research questions. Further, it was necessary to consider the high correlations between age and BMI, gender and emotional eating, and gender and restraint; if entered into block 1, gender and age may have explained so much of the variance that it would have been difficult to discern the relevance of the family and childhood feeding variables.

One of the feeding questions (#33, "When my parents were upset with one another, I ate more than usual.") was omitted from the childhood feeding subscales because, in retrospect, its content seemed to be an example of emotional eating rather than a non-nutritional use of food by parents. This belief about the content is supported by the correlation between the question and emotional eating ($r = .38$, $p = .000$). The question also was significantly positively correlated with the three other eating styles.

The hierarchical regression with BMI as the dependent variable is summarized in Table 6. Sexual avoidance was found to be a significant predictor of BMI in Step 1 of

the analysis; respondents who were sexually avoidant were more apt to have higher BMI scores compared to others in this sample. Sexavoid remained a significant predictor in Step 2, and feeding enmeshment was also a significant predictor of BMI.

Table 6

Summary of Hierarchical Regression Coefficients (Betas) for Variables Predicting BMI (n = 223)

Independent Variable	Step 1	Step 2	Step 3	r
Family Interaction Variables				
Intergenerational Intimacy	-.088	-.050	-.065	-.05
Intergenerational Differentiation	.079	.120	.181	-.05
Intergenerational Triangulation Health	-.156	-.113	-.145	-.09
Spousal Intimacy	.080	.036	.003	-.02
Spousal Differentiation	.092	.089	.165	-.02
Nuclear Family Triangulation Health	.023	.084	.085	-.03
Sexavoid (Question 52)	.327**	.346**	.365***	.29***
Deprived (Question 53)	.123	.080	.125	.26***
Childhood Feeding Variables				
Use of Food as a Reward (Question 24)		-.229	-.116	.00
Parental Disagreement About Feeding (Question 32)		.083	.134	.03
Coersive Use of Food (Questions 23, 25, & 26)		.159	.114	.12
Expression of Love through Food (Questions 27 –29)		.121	.028	.05
Feeding Enmeshment (Questions 30 & 31)		.177*	.139	.19**
Demographic Variables				
Age			.241**	.27**
Gender (males coded 1; females coded 2)			-.201*	-.11
Educational Level			-.138	-.12
Annual Household Income			.008	-.06
Marital Status (single coded 1; married coded 2)			.105	.07
R squared	.171**	.242	.363**	

*p < .05 **p < .01 ***p < .001

Respondents who did not feel free to make their own feeding decisions as children were found to have higher BMI scores. Sexavoid continued to be a significant predictor of BMI in Step 3 of the analysis, but feeding enmeshment did not. As expected, age and gender were significant predictors of BMI in Step 3. However, the gender effect was in the opposite direction that would have been anticipated. Men in this sample were more likely to be overweight (according to the criteria set by Najjar and Rowland, 1987) than

the women. Older respondents were found to have higher BMI scores than younger ones. The coefficients of determination were significant for Step 1 and Step 3 of the analysis. Therefore, the family functioning variables and the demographic variables explained a significant amount of the variance in respondents' weights, while childhood feeding variables did not.

The results of the regression analysis with restrained eating as the dependent variable are reported in Table 7. In Step 1 and Step 2 of the analysis, no family relationship variables or childhood feeding variables were significant predictors of

Table 7

Summary of Hierarchical Regression Coefficients (Betas) for Variables Predicting Restraint (n = 237)

Independent Variable	Step 1	Step 2	Step 3	r
Family Interaction Variables				
Intergenerational Intimacy	-.071	-.047	-.018	-.06
Intergenerational Differentiation	.041	.052	.035	-.06
Intergenerational Triangulation Health	-.021	-.033	-.064	-.04
Spousal Intimacy	-.059	-.041	-.070	-.07
Spousal Differentiation	.010	.002	-.010	-.07
Nuclear Family Triangulation Health	.049	.042	.081	-.01
Sexavoid (Question 52)	.179	.179	.175	.08
Deprived (Question 53)	-.014	-.036	-.032	.10
Childhood Feeding Variables				
Use of Food as a Reward (Question 24)		.135	.137	-.03
Parental Disagreement About Feeding (Question 32)		.067	.047	.12
Coersive Use of Food (Questions 23, 25, & 26)		.050	.124	.08
Expression of Love through Food (Questions 27 –29)		-.111	-.161	-.01
Feeding Enmeshment (Questions 30 & 31)		-.020	-.018	.02
Demographic Variables				
Age			.112	.09
Gender (males coded 1; females coded 2)			.193*	.19**
Educational Level			-.038	.12
Annual Household Income			.167	.11
Marital Status (single coded 1; married coded 2)			-.034	.03
R squared	.039	.064	.136	

*p < .05 **p < .01 ***p < .001

restraint. Gender was found to be a significant predictor of restraint in Step 3. These findings suggest that restrained eating, or a tendency to diet, is more common among women than men. No set of variables explained a significant amount of variance.

The results of the hierarchical regression analysis with emotional eating as the dependent variable are reported in Table 8. In Step 1 of the analysis, intergenerational health and sexavoid were found to be significant predictors of emotional eating. Thus, coming from homes in which parents triangulated the children was a significant predictor of emotional eating for these respondents. Being sexually avoidant was also a significant

Table 8

Summary of Hierarchical Regression Coefficients (Betas) for Variables Predicting Emotional Eating (n = 237)

Independent Variable	Step 1	Step 2	Step 3	r
Family Interaction Variables				
Intergenerational Intimacy	-.103	-.098	-.079	-.16*
Intergenerational Differentiation	-.054	-.034	-.079	-.19**
Intergenerational Triangulation Health	-.221**	-.196*	-.203*	-.12
Spousal Intimacy	.115	.111	.137	-.09
Spousal Differentiation	.020	-.004	-.024	-.19**
Nuclear Family Triangulation Health	-.170	-.136	-.134	-.24**
Sexavoid (Question 52)	.203*	.222*	.198*	.31***
Deprived (Question 53)	.134	.068	.061	.32***
Childhood Feeding Variables				
Use of Food as a Reward (Question 24)		.088	.060	-.19**
Parental Disagreement About Feeding (Question 32)		.010	-.025	.17*
Coersive Use of Food (Questions 23, 25, & 26)		.026	.088	.27***
Expression of Love through Food (Questions 27 –29)		.066	.059	.22**
Feeding Enmeshment (Questions 30 & 31)		.056	.074	.21**
Demographic Variables				
Age			-.062	-.01
Gender (males coded 1; females coded 2)			.184*	.18**
Educational Level			.041	.07
Annual Household Income			.039	.04
Marital Status (single coded 1; married coded 2)			.044	.09
R squared	.194***	.220	.263	

*p < .05 **p < .01 ***p < .001

predictor for eating in response to emotion. These family variables remained significant in Step 2 of the analysis, but no childhood feeding variables were found to be significant. In Step 3 of the analysis, the same family variables were significant and gender was also found to be a significant predictor of emotional eating; females in this sample were more apt to be emotional eaters than men. The family variables (block 1) explained a significant amount of the variance in scores, but the childhood feeding and demographic variables did not.

The results of the hierarchical regression analysis with external eating as the dependent variable is reported in Table 9. In Step 1 of the analysis, no family variables were found to be statistically significant at the .05 level. In Step 2 of the analysis, Question 24 (Use of Food as Reward) was found to be significant, indicating that respondents in this sample who were rewarded with food as children were more likely to be external eaters as adults than those who were not rewarded with food. In Step 3 of the analysis, there were no significant predictors of external eating. The family variables and the childhood feeding variables both explained significant amounts of variance in this model, but demographic variables did not.

Table 9

Summary of Hierarchical Regression Coefficients (Betas) for Variables Predicting External Eating (n = 237)

Independent Variable	Step 1	Step 2	Step 3	r
Family Interaction Variables				
Intergenerational Intimacy	-.122	-.081	-.077	-.14*
Intergenerational Differentiation	.050	.083	.061	-.12
Intergenerational Triangulation Health	-.165	-.166	-.164	-.11
Spousal Intimacy	.005	.025	.040	-.14*
Spousal Differentiation	-.017	-.049	-.060	-.20**
Nuclear Family Triangulation Health	-.142	-.118	-.121	-.27***
Sexavoid (Question 52)	.116	.130	.121	.27***
Deprived (Question 53)	.075	-.026	-.029	.18**
Childhood Feeding Variables				
Use of Food as a Reward (Question 24)		.265*	.234	.23***
Parental Disagreement About Feeding (Question 32)		.092	.073	.15*
Coersive Use of Food (Questions 23, 25, & 26)		.158	.184	.29***
Expression of Love through Food (Questions 27 –29)		-.089	-.082	.20**
Feeding Enmeshment (Questions 30 & 31)		-.001	.008	.12
Demographic Variables				
Age			-.053	-.10
Gender (males coded 1; females coded 2)			.079	.01
Educational Level			.072	.11
Annual Household Income			.003	.06
Marital Status (single coded 1; married coded 2)			.013	.02
R squared	.114*	.230**	.245	

*p < .05 **p < .01 ***p < .001

The hierarchical regression with binge eating as the dependent variable is reported in Table 10. In Step 1 of the analysis, sexavoid was found to be a significant predictor of binge eating. In Step 2, there were no significant childhood feeding variables, but sexavoid continued to be significant. In Step 3, sexavoid continued to be the only significant predictor of binge eating. These findings can be interpretted to suggest that respondents who are sexually avoidant are more likely to be binge eaters than others in the sample. The family variables explained a significant amount of the variance, while childhood feeding variables and demographic variables did not.

Table 10

Summary of Hierarchical Regression Coefficients (Betas) for Variables Predicting Binge Eating (n = 237)

Independent Variable	Step 1	Step 2	Step 3	r
Family Interaction Variables				
Intergenerational Intimacy	.078	.141	.149	-.18**
Intergenerational Differentiation	-.137	-.093	-.091	-.24***
Intergenerational Triangulation Health	-.137	-.118	-.134	-.11
Spousal Intimacy	-.113	-.148	-.161	-.23**
Spousal Differentiation	.074	.085	.085	-.18**
Nuclear Family Triangulation Health	-.139	-.126	-.104	-.19*
Sexavoid (Question 52)	.207*	.219*	.215*	.25***
Deprived (Question 53)	.166	.139	.132	.31***
Childhood Feeding Variables				
Use of Food as a Reward (Question 24)		-.004	.062	.11
Parental Disagreement About Feeding (Question 32)		.143	.139	.20**
Coersive Use of Food (Questions 23, 25, & 26)		.111	.148	.25***
Expression of Love through Food (Questions 27 –29)		-.114	-.170	.06
Feeding Enmeshment (Questions 30 & 31)		.144	.151	.14*
Demographic Variables				
Age			.148	.03
Gender (males coded 1; females coded 2)			.121	.07
Educational Level			-.159	-.03
Annual Household Income			-.008	-.11
Marital Status (single coded 1; married coded 2)			-.004	-.04
R squared	.193***	.246	.299	

*p < .05 **p < .01

Secondary Analysis

Relationship Between Childhood Feeding Questions and Childhood Weights.

Because the childhood feeding questions pertained to feeding experiences that took place in childhood, correlations were run to determine the relationship between those feeding experiences and respondents' perceptions of their childhood weights. Childhood weights were defined by respondents' descriptions (e.g., "underweight", "just about right", "slightly overweight", "moderately overweight", and "quite overweight") of their weights at various stages in life. These correlations are reported in Table 11. Use of food as a

reward and the three questions that comprise the coercive use of food subscale were significantly correlated with at least one childhood weight. People in this sample who described themselves as heavier in childhood were more likely to have experienced being rewarded or coerced with food as a child. Being consoled with food ("When I felt bored, sad, or upset, my parent would make or buy a special food for me") and eating in response to parental discord in childhood were also more likely with the respondents who perceived themselves as overweight in childhood.

Analysis Regarding Respondents' Children. Respondents' perceptions of their children's weights were correlated with the second set of childhood feeding questions (Appendix I). These questions pertained to respondents' feeding practices toward their children. A child's weight was determined by the respondent's identification of his/her child as "underweight", "just about right", "slightly overweight", "moderately overweight", or "quite overweight". First children ($n = 174$) ranged in age from less than one to 44 years old. Respondents' reports of their first children's weights were significantly correlated with first children's ages ($r = .28$, $p < .01$) and with the parents'/respondents' weights ($r = .19$, $p < .05$). There was only one significant finding in regard to the feeding questions: "It bothers me when my child doesn't eat as much as I think he/she should." ($r = -.23$, $p < .01$). This finding indicates that respondents worry more about a child eating enough if that child weighs less. Second children ($n = 124$) ranged in age from less than a year to 42 years old. Respondents' reports of their second children's weights were significantly correlated with second children's ages ($r = .21$, $p < .05$), but not with respondents' weights. A significant correlation existed between second child weights and one feeding question: "Sharing a special food or meal with my child

Table 11

Correlations (r) Between Childhood Feeding Questions and Weight Over Time

	PS	EL	HS	CO	20's
When my parent wanted me to do something (e.g., chore), s/he would promise me a snack when I did what she wanted me to.	.15*	.20**	.13	.17*	.16*
If I accomplished something special, my parent would take me out to eat or make a special food for me.	.15*	.17*	.14*	.13	.08
My parent gave me something to eat when s/he wanted me to be quiet or settled.	.17**	.19**	.13*	.16*	.21**
My parent punished my bad behavior by not letting me have a snack or dessert.	.17**	.10	.04	.10	.07
When I felt sad, bored, or upset, my parent would make or buy a special food for me.	.18**	.23***	.19**	.14*	.11
My parent made a nice meal/special food as a way of showing his/her love to me.	.03	.05	.07	.03	-.02
Sharing a special food or meal with my parent was a good way to feel close.	.07	.13*	.09	-.03	.00
I felt uncomfortable turning down food that my parent offered.	.08	.06	.03	-.07	-.02
I felt free to express dislike of a food that my parent had prepared.[a]	.03	-.01	-.02	.02	.02
My parents disagreed about what I should eat or how much.	.05	.11	.05	.04	.10
When my parents were upset with one another, I ate more than usual.	.22**	.20**	.28***	.17**	.15*

Note. PS stands for respondents' recall of preschool weight; EL stands for weight in elementary school; HS stands for high school weight; CO stands for weight at college age; 20's stands for respondents' weights while in their twenties.

[a] Question was coded in reverse.

*$p < .05$ **$p < .01$ ***$p < .001$

is a good way to feel close to him/her" (r = -.26, p < .01). This negative correlation suggests that sharing food as a means of feeling close is not associated with higher weights. Third and fourth children's weights were not analyzed due to the inadequate samples (n = 34, n = 7, respectively).

Multiple regression equations were used to estimate the relative effects of the independent variables on children's weights. The independent variables were child feeding questions (coercive use of food, expression of love through food, feeding enmeshment, food as a reward, and parental disagreement about feeding) (see Appendix I, part 2), child's age, and parent/respondent's BMI. The full regression model found child ages to be significant predictors of first child weights (Beta = .288, p = .006) and second child weights (Beta = .311, p = .013). No other significant predictors were found. Therefore, a forward selection regression model was used as an attempt to better understand the relevance of the child feeding practices. The original forward selection regression model regarding the second child failed to be enlightening in terms of the child feeding questions. Therefore, the criterion for inclusion of variables in the model was changed (probability of F to enter <= .10). The results of these analyses are reported in Table 12. It was interesting to note that the feeding questions that were statistically significant were not the same for the first and second children. In order to determine if these findings were due in part to the treatment of only children, a second analysis was conducted for the first child with only children eliminated. The forward regression analysis for the first of two children was similar to the analysis for all first children; the same variables were included in the model, but feeding enmeshment was no longer statistically significant at the .05 level (p = .083).

Table 12

Forward Selection Regression Model for Variables Predicting First and Second Children's Weights

First Child

Model	Variable	B	SE B	Beta	R squared
1	Age of Child #1	.321	.095	.298**	.09
2	Age of Child #1	.320	.094	.298**	
	Feeding Enmeshment (#95 & #96)	-.185	.092	-.175*	.12

Second Child

Model	Variable	B	SE B	Beta[a]	
1	Food as Reward (#89)	-.226	.118	-.206	.04
2	Food as Reward (#89)	-.282	.118	-.258	
	Age of Child #2	.291	.125	.251	.10

*p < .05 **p < .01 [a] coefficients shown for Child #2 were significant only at the .10 level

CHAPTER V
Discussion

It is widely accepted that genetics account for much, if not most, of the variance in individuals' weights (Bouchard, 1994). Behavioral and clinical psychologists have attempted to explain the nongenetic variance for years with limited success. It has been concluded that obese and nonobese people in the general population do not differ consistently in terms of eating behaviors (Drewnowski, 1996), personality (Blankmeyer, et al., 1990), or levels of psychopathology (Wadden & Stunkard, 1985). A family systems approach has been used to try to explain the presence of obesity; these studies have yielded mixed results due in part to small samples, lack of control groups, and overuse of treatment-seeking subjects. Therefore, one purpose of this study was to continue to assess family systems variables by using a relatively large, general population sample that included all weight levels. Another purpose of the study was to investigate to the possible relevance of eating styles since it has been suggested that family variables may be more related to certain eating styles (that can lead to obesity) than to obesity per se (Friedman et al., 1997; Ganley, 1992). Further, this study addressed the non-nutritional uses of food in parenting and how those uses of food are related to degree of overweight in childhood, BMI in adulthood, and problematic eating styles. In this chapter, the findings of this study will be discussed in terms of previous research and implications for treatment, education, and future research.

Respondents

A strength of this study was the use of a nonclinical sample. This is important because it is believed that treatment-seeking people are more symptomatic/pathological than people who are not seeking treatment (Foster & Wadden, 1994). As expected,

participants in this study were diverse in terms of weights, ages, and the eating styles. Seventy respondents identified themselves as binge eaters (n = 70). The possible and actual range of scores for restrained and emotional eaters was 1 to 5. The possible range of scores for external eaters was also 1 to 5, but the actual range was 1.5 to 5. Means and standard deviations for these eating behaviors are as follows: restraint (M = 2.91, SD = .92), emotional eating (M = 2.84, SD = 1.11), and external eating (M = 3.36, SD = .72). The frequencies of responses for questions measuring restrained, emotional, and external eating are reported in Table 13.

Table 13

Frequencies of Responses to Questions Measuring Restrained, Emotional, and External Eating

	never	seldom	sometimes	often	very often	n
How often do you refuse food or drink offered because you are concerned about your weight?	28	71	99	24	13	235
Do you deliberately eat low calorie or diet foods?	23	39	95	49	30	236
Do you deliberately eat less in order not to become heavier?	25	47	101	42	22	237
Do you have the desire to eat when you are irritated or upset?	32	63	58	42	41	236
Do you have a desire to eat when you are feeling lonely?	41	61	72	33	28	235
Do you have a desire to eat when you are dreading something unpleasant to happen?	56	71	52	29	27	235
Do you get the desire to eat when you are anxious, worried, or tense?	45	58	65	36	31	235
Do you have a desire to eat when things are going against you or when things have gone wrong?	44	76	57	28	30	235
Do you have a desire to eat when you are bored or restless?	16	33	101	52	35	237
If food tastes good to you, do you eat more than usual?	3	11	103	92	27	236
If you see or smell something delicious, do you have a desire to eat it?	1	15	92	94	34	236
If you see others eating, do you also have the desire to eat?	11	47	108	50	19	235
When preparing a meal, are you inclined to eat something?	13	46	81	72	25	237

By contrast, the sample was quite homogeneous in terms of race, gender, and socioeconomic status. The response rate among blue-collar employees was particularly

disappointing, but perhaps to be expected given that these employees were not asked face-to-face to participate; rather, distribution of surveys was left up to the principals and/or clerical staff. It is possible that the sample was *slightly* less homogeneous than the data indicates in that a number of respondents failed to answer certain demographic questions. For example, 13 respondents chose not to identify their race(s). It seems likely that these respondents were racial minorities because minority respondents would have more reason to not identify their race(s) compared to whites; a minority respondent's identification of race significantly reduces his/her sense of anonymity while a white person's identification of race does not. In any case, the sample was quite homogeneous. Given that weight previously has been found to be highly correlated with race (Kuczmarski, et al., 1994), gender, age, and socioeconomic status (Goldblatt, Moore, & Stunkard, 1965; Stunkard, 1985), the current findings can not be applied reasonably to the population in general. It is interesting to note that men in this sample were more likely to be overweight than women, according to the criteria set by Najjar and Rowland (1987). While the correlation between weight and gender was not statistically significant, the direction of the correlation was contrary to most previous research (e.g., Najjar & Rowland, 1987). This is not a complete surprise given that the negative correlation between weight and socioeconomic status is stronger for women than for men (Goldblatt, Moore, & Stunkard, 1965); in other words, most of the women in this study had a professional status that would make them less likely to be obese, while men's weights were less related to their professional status.

One final point to make about the sample is the potential for bias in a self-selecting sample. For example, one potential participant was heard to say, "No way am I

going to answer this survey, being as fat as I am…". The possibility of bias is supported by the fact that 14 respondents did not provide adequate information (weight or height) to calculate their BMI scores. If obese people were less likely to participate, it is possible that people from particularly dysfunctional families or marriages were less likely to participate.

Discussion of Obesity

Family Function Variables. There were no significant relationships found between BMI and the PAFS-Q variables regarding family of origin (intergenerational intimacy, intergenerational differentiation, and intergenerational triangulation). These findings are in contrast to several earlier studies. Previous research may be interpreted as suggesting that obesity in children is associated with boundary problems (i.e., problems of differentiation) (e.g., Banis et al., 1988; Beck & Terry, 1985; Hammar, et al., 1972; Harkaway, 1986), communication problems (i.e., intimacy) (e.g., Birch, et al., 1981; Bullen, et al., 1964; Kinston, Loader, & Miller, 1988), and behaviors associated with triangulation (Hammar, et al., 1972; Kinston, Loader, Miller, & Rein, 1988). It is likely that part of this discrepancy can be explained by the frequent use of treatment-seeking samples in the past (e.g., Harkaway, 1986; Kinston, Loader, & Miller, 1988). Perhaps there is little relationship between family of origin functioning and obesity in nonclinical people. It also seems likely that part of the difference can be explained by the fact that these previous studies addressed children who were still in the family of origin while the current study addressed adults who described their families of origin. It is possible that there is a tendency to view one's family of origin more favorably as time goes by, to blot out negative memories that are viewed as irrelevant in the present. It is also possible that

children in dysfunctional families grow up, learn new interactional patterns, and have healthier relationships with their families of origin in adulthood. In other words, assumptions cannot be made about respondents' experiences in childhood based on their current relationships with their families of origin.

In regard to respondents' marital relationships, significant findings were minimal. In keeping with previous research (Hayes & Ross, 1987; Sobal, et al., 1992), the married respondents were more likely to be overweight than single respondents; the correlation between marital status and weight was not statistically significant, however. There were no significant findings between BMI and the PAFS-Q variables related to respondents' current families (spousal intimacy, spousal differentiation, and nuclear family triangulation). This is not surprising considering the equivocal findings of previous research. While a number of studies have found significant relationships between marital distress and obesity, most of these studies have used treatment-seeking subjects only (e.g., Bradley, 1985; Felitti, 1993; Hafner, et al., 1987). General population studies have yielded few significant findings, and results have been inconsistent (Cohen, et al., 1991; Margolin & White, 1987; Sobal et al., 1995).

Two marriage-related variables in this study were found to be significantly related to BMI. There were strong, positive correlations found between Body Mass Index and the following statements: "If I were to become thinner, my mate may want to have sex more often than I do" (Sexavoid) and "If my mate were to be more affectionate, I would eat less" (Deprived). While people in this sample who had high BMI scores were no more likely to report marital problems than thinner people, there does appear to be a subgroup of heavier respondents who have a degree of sexual conflict in their marriages,

or they fear that they would if they were thinner. These findings are in keeping with the previous findings of Stuart and Jacobson (1987) who found a significant number of women who preferred to be overweight in order to deflect unwanted sexual advances and women who ate as a means of self-comfort when feeling rejected. Margolin and White (1987) have also found wives' weight gains to be positively correlated with husbands' disinterest in sex. It is interesting to note that the two variables "Sexavoid" and "Deprived" are strongly, positively correlated ($r = .531$; $p = .000$), suggesting that respondents who may be avoidant of sex tend to want more affection. It is also interesting to note that the PAFS-Q question regarding sexual satisfaction ("My sex life with my mate is quite satisfactory") is not significantly correlated to BMI, "Sexavoid", or "Deprived". This suggests that heavier women are no more likely to be sexually dissatisfied than thinner women, but for some women overeating or overweight serves to maintain the balance that is necessary for satisfaction.

Childhood Feeding Variables. Two of the childhood feeding behaviors experienced in childhood were positively correlated with BMI: "When my parent wanted me to do something (such as a chore), s/he would promise me a snack when I did what s/he wanted me to" and "I felt uncomfortable turning down food that my parent offered". The latter question was one of the questions that comprised Feeding Enmeshment which was a significant predictor of BMI in Step 2 of the hierarchical regression model (see Table 6). Feeding Enmeshment addresses the issue of parental overcontrol which has been found to be positively correlated with children's weights (Birch & Fisher, 1998; Klesges, et al., 1983; Klesges, et al., 1986). While Feeding Enmeshment was significantly correlated with respondents' current BMI scores, it was not significantly

correlated with their descriptions of their degree of overweight in childhood (see Table 11). This may be explained in small part by the tendency for a child to dislike what s/he is encouraged to eat (Birch, Birch, Marlin, & Kramer, 1982). Perhaps children initially rebel against parental overcontrol in feeding, but as adults eat more in line with how they were encouraged to eat as children. This possible explanation contradicts the aforementioned findings that suggest that parental overcontrol is associated with higher children's weights *while the children are young*.

While no other child feeding questions were correlated with current BMI, several other questions were significantly correlated with respondents' perceptions of the degree of overweight they experienced in childhood. Responses to all three questions that made up Coersive Use of Food and the question related to use of food as a reward were positively correlated with perception of childhood weight. This is in keeping with the Birch, Zimmerman, and Hind (1982) finding that a child's preference for a food increases when it is used as a reward/incentive in nonfood related tasks. Finally, childhood weights at every age were positively correlated with agreement with the statement "When I felt sad, bored, or upset, my parent would make or buy a special food for me". It is confusing that so many childhood feeding practices were found to be significantly correlated to childhood weights but not to adult weights. Given the positive correlation between childhood weights and adult weights (preschool, $\underline{r} = .317$, $\underline{p} = .000$; elementary age, $\underline{r} = .311$, $\underline{p} = .000$), one could expect that the correlation between feeding practices and weight would continue into adulthood. Perhaps children eat more when they are reinforced to do so, but no longer overeat when the reinforcements are gone.

Respondents' Children. In looking at the relationships between child feeding

practices by respondents toward their children and respondents' perceptions of their children's weights, there were few significant findings. In the forward regression model for Child 1, Feeding Enmeshment was found to be a significant, negative predictor of perceived weight (see Table 12). In other words, parental overcontrol in feeding was associated with lower perceived weights. This finding is in keeping with the aforementioned suggestion that parental overcontrol possibly leads to a lack of child compliance in eating. In the forward regression model related to Child 2, one feeding variable was a significant predictor of perceived weight (see Table 12). Use of Food as a Reward was significant, but the Beta weight was negative. This suggests that using food as a reward is predictive of lower weights in Child 2. This finding contradicts the positive correlation found between respondents' BMIs and their having been rewarded with food as a child. Child 2 weights (as described by respondents) were also significantly, negatively correlated with "Sharing a special food or meal with my child is a good way to feel close to him/her". This suggests that strong agreement with this statement is associated with lower perceived weights; this finding is in contrast to the positive correlation found between respondents' weights in elementary school and respondents' agreement with the statement as a description of their own childhood experience.

The relevance of childhood feeding practices was found to be quite different for respondents and their children in two ways. First, there were more significant findings regarding respondents' weights than respondents' perceptions of their children's weights. Second, the significant findings related to children's weights were in the opposite direction from the findings related to respondents' weights. This is a confusing finding,

but there are several factors that could have possibly contributed to the differences. It may be harder for respondents to recognize or acknowledge certain feeding practices in their parenting than in their childhood experiences. Parent/respondents may also be more or less accurate in the reporting of their own weights compared to reporting their children's weights. Respondents' weights were reported in exact numbers whereas children's weights were described by using imprecise categories (e.g., "slightly overweight", "moderately overweight").

It was interesting that the feeding variables of significance were different for Child 1 and Child 2. This trend remained even after eliminating only children from the Child 1 group. This suggests that in families from this sample with two or more children, the first and second children may be treated differently in regard to feeding practices. One could speculate that this has something to do with parents being more uptight with first children and more relaxed with second children. It would have been helpful to know the genders of respondents' children given that parental overcontrol in feeding is more likely to occur between mothers and daughters than between mothers and sons (Johnson & Birch, 1994). This finding could also suggest that first and second children respond differently to different childhood experiences.

Discussion of Eating Styles

Family Function Variables. It is difficult to discuss the current findings with previous research because there has been very little study of the relationship between eating styles and family functioning (not counting research related to anorexia and bulimia nervosa). None of the PAFS-Q family variables in this study were significant predictors of restraint. Ganley (1992) found the families of obese restrained/emotional

eating women to be more disengaged, more rigid, and characterized by lower levels of spousal regard when compared to families of nonrestrained women. These findings were specific to obese restrained/emotional eaters, and the same levels of family dysfunction were not found in families of normal weight restrained eaters. In keeping with the restraint model developed by Herman and Polivy (1980), restraint in this study was significantly positively correlated with emotional eating (r = .277, p = .000).

The current study did not initially address the differences between obese restrained eaters and normal weight restrained eaters as Ganley (1992) did. It seemed safe to say from the initial analyses that restraint by itself was not indicative of family dysfunction, but that did not rule out the possibility of an interactional effect between restraint and obesity. Therefore, in order to assess the possibility of an interactional effect, further analysis was conducted. Analysis of variance was run to determine the differences between four groups: respondents who were high in restraint and BMI, those who were high in restraint and low in BMI, those who were low in restraint and high in BMI, and those who were low in restraint and BMI. To ensure that these groups were quite distinct, middle range scores for restraint and BMI were not used. The highest one-third and the lowest one-third for restraint were used to make up the high restraint and low restraint groups. In like manner, only those with a BMI over 27.8 were used for the high BMI groups, while only those with a BMI under 24.4 were used for the low BMI groups. No interactional effect was found. Similar analyses were run to determine if there was an interactional effect between BMI and any of the other eating styles; there were no significant interactional effects found.

Two family variables were found to be significant predictors of emotional eating

in the hierarchical regression analysis (see Table 8): Intergenerational Triangulation Health (negative beta) and Sexavoid (positive beta). Further, emotional eating was found to be significantly correlated with two other variables: Deprived (positive correlation) and Intergenerational Differentiation (negative correlation). This suggests that respondents who are displeased with the amount of affection in their marriages are more likely to eat in response to negative emotions than other respondents. This is consistent with findings by Stuart and Jacobson (1987). The connection between emotional eating and sexual avoidance found in the current study is consistent with previous findings that suggest a connection between emotional eating and a lack of assertiveness (Ganley, 1992). Perhaps respondents in this study who are sexually avoidant use emotional eating and/or overweight as a means of speaking up for themselves in the absence of more direct, assertive means. Further, the regression analysis results suggest that respondents who have been triangulated in their parents' marriages and respondents who are poorly differentiated from their parents are more prone to engage in emotional eating than other respondents. Similarly, binge eating was found to be significantly negatively correlated with five of the family function variables and significantly positively correlated with both sex-related questions. This suggests that respondents who are poorly differentiated from and have low levels of closeness with their parents and significant others tend to binge eat more than other respondents. Further, binge eaters are more likely to triangulate their children, feel deprived of affection, and be sexually avoidant.

Problems with differentiation and triangulation are consistent with previous findings related to obesity in families (Banis, et al., 1988; Beck & Terry, 1985; Bullen et al., 1964; Hammar et al., 1972; Harkaway, 1986). The presence of poor differentiation in

this study helps to reconcile seemingly contradictory previous findings of enmeshment (e.g., Harkaway, 1986) and poor unification (e.g., Bullen, et al., 1964). Perhaps family interaction was found to be related to obesity in these studies because of the presence of emotional eating and/or binge eating. This notion is consistent with the findings of Friedman, et al.(1997); these researchers found binge eaters to experience higher levels of family dysfunction than nonbingers, regardless of weight. The binge eaters in the study were treatment-seeking people while the nonbingers were not, causing one to wonder if binge eating is related to family functioning in the general population. The current study provides *modest* support for the idea that emotional eating and binge eating are related to family functioning even in nonclinical samples. The findings about differentiation and triangulation lend support to the Psychosomatic Model of Families. According to the model, psychosomatic families are characterized by enmeshment, rigidity, overprotectiveness, and poor conflict resolution (Minuchin, 1975). Enmeshment could be defined as poor differentiation, and triangulation is a good example of conflict avoidance; thus, the emotional eaters and binge eaters in this study belong to families that resemble psychosomatic families. According to the model, psychosomatic families are characterized by a family member who exhibits a symptom (in this case, emotional eating or binge eating) that serves a function in the family. The function of the symptom can vary but is related to boundaries, power, conflict, or other family processes.

Childhood Feeding Variables. Birch and Fisher (1998) have suggested that children naturally have the means to self-regulate their food intake if given the chance, but parental control interferes with a child's response to his/her internal cues. Parental control in feeding has been found to be positively correlated with children's weight

(Klesges et al., 1983; Klesges et al., 1986). It has also been found that a child's preference for a particular food is increased when the parent uses the food as a reward in a nonfood related task (Birch, Zimmerman, & Hind, 1982). There has been little research done regarding how the non-nutritional uses of food and parental overcontrol in feeding impact the eating styles of children as adults.

While only two questions related to childhood feeding practices were correlated significantly to BMI in this study, most of the questions were correlated significantly to emotional eating and external eating (questions 23-28, 30, and 32 for both eating styles; see Appendix I). These correlations can be interpreted to suggest that respondents in this sample who experienced the non-nutritional uses of food in childhood were more likely to grow up to be emotional eaters and externally-oriented eaters than other respondents. None of these variables were significant predictors of emotional eating in the regression analysis, and only one (Use of Food as Reward) was a significant predictor of external eating in the regression analysis. This lack of significant predictors is probably best explained by the high correlations between feeding questions; independent variables that are significantly correlated with the dependent variable are apt to "cancel each other out" when they are also highly correlated with each other.

In this study, the relationship between the childhood feeding practices and binge eating was not unexpected given previous findings. Binge eating was significantly positively correlated with "My parents disagreed about what I should eat or how much I ate". This question was more highly correlated with binge eating than any other eating style. The question content is more suggestive of triangulation than the non-nutritional use of food. Binge eating was also significantly positively correlated with the coercive

use of food and feeding enmeshment. These findings are similar to a previous finding that bulimics frequently experienced mealtime conflict while growing up (Miller, et al., l993).

Summary and Conclusions

Obesity is a heterogeneous condition that can have a significant impact on health and, in extreme cases, life expectancy. It can also affect one's body image and the degree to which a person experiences acceptance or prejudice in our society. At this point, most researchers would agree that genetic factors are responsible for a large percentage of the variance in weights (Bouchard, 1994). However, we cannot change our genetic makeup. Therefore, it was the purpose of this study to understand better some of the possible nongenetic causes of obesity, specifically variables related to family functioning and childhood feeding practices. To do this, it was necessary to take into consideration the various eating styles that can be related to obesity. By considering eating styles it was possible to assess direct influences on obesity (i.e., family factors affect obesity) and indirect influences on obesity (i.e., family factors affect eating styles which affect obesity). In terms of the Psychosomatic Family Model, the study attempted to determine to what extent obesity is a symptom of family dysfunction, and if the real symptom is obesity per se or eating styles that can lead to obesity.

Overall, it appears that certain eating styles are more likely than obesity to be a symptom of family dysfunction. In other words, overeating serves more of a function for these respondents than the condition of obesity. The exception to this would be in regard to sexual avoidance. For a certain subgroup in this sample, being over their ideal weights is a way of deterring unwanted sexual attention. It cannot be assumed that these

respondents are pathological in any way; this finding could simply reflect a difference in sexual drive between spouses. Aside from using weight as a sexual deterrent, it does not appear that obesity in and of itself is related to family functioning in this nonclinical sample. The findings of this study do however provide some support for the idea that family dysfunction (e.g., poor differentiation, triangulation) is related to emotional eating, external eating, and binge eating, but not for restrained eating. The family variables explained more of the variance in emotional eating and binge eating scores than in BMI scores. Thus, these variables are better predictors of emotional and binge eating than of obesity. Given that BMI was found to be significantly correlated with emotional eating and binge eating, it is theoretically possible that the family interactional variables do affect BMI indirectly; however, the large number of other factors that affect BMI (e.g., genetics, activity levels) prevented any family effects from being significant.

Even though there were few significant childhood feeding predictors in the regression analyses, the correlational analyses suggest that childhood feeding practices are relevant to overeating and overweight, at least with this sample. Non-nutritional uses of food were especially related to emotional eating and external eating, suggesting that children learn from their parents to eat in response to emotions and external cues rather While respondents' childhood weights were significantly correlated with several of the childhood feeding questions, current BMI was correlated significantly with only two questions. Perhaps people can outgrow the effects of the non-nutritional use of food or these effects become insignificant in adulthood compared to other influences on weight (e.g., genetics).

It is important to remember the limit to which these results can be applied to the

population. The sample used in this study was not as heterogeneous as expected. Men, racial minorities, and blue-collar employees were underrepresented. This study did raise some interesting questions that could be explored in future research. First, why were the child feeding practices of significance different for respondents' first and second children? Also, why were the childhood feeding questions more relevant to respondents' childhood weights than their current weights?

Implications for Clinicians and Educators

The results of this study serve to emphasize the importance of proper assessment of obese individuals in treatment settings. While there is evidence in past research that treatment-seeking individuals have greater levels of distress than those who are not seeking treatment, it cannot be assumed that family (or individual) pathology exists just because someone is obese. At the same time, physicians and therapists should understand that for some obese people, family dynamics are relevant. It should not be assumed that all overweight people want to be thin. Even if obese patients act as though they want to lose weight, there may be significant ambivalence about giving up a symptom that serves a purpose in their relationships. Efforts to lose weight will be pointless until that ambivalence is resolved. Other obese patients will be positive that they want to lose weight because their weight does not serve any useful function; however, this does not mean that eating patterns do not serve a function. Obese patients who want to lose weight need to be assessed for emotional eating, external eating, and binge eating. Emotional eaters and binge eaters need to be taught new ways of dealing with emotions, new ways to be assertive, and new ways to comfort themselves without food. External eaters need to be taught how to listen to the internal cues of hunger as a

way of deciding when and what to eat. While restraint was not significantly related to weight or family variables in this study, an assessment of restraint history can be an important part of treatment. If obese people are also frequent dieters, it is likely they have ambivalence or a certain style of eating that needs to be addressed. On the other hand, exploring these issues may reveal that there is no ambivalence or disordered eating; in this case the patient needs to improve his/her body image and accept the genetic "hand s/he has been dealt" (assuming food choices and exercise habits have been addressed).

The findings in this study regarding feeding practices in childhood, along with previous findings, suggest that the non-nutritional use of food is related to children's weights and the eating patterns they go on to develop in adulthood. One cannot assume that these findings are common knowledge among parents. It is important for parent educators to provide this information to parents at every opportunity. Even if the significance of these practices is small in the grand scheme of things, it is important to give parents the opportunity to make even a small difference in their children's futures.

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APPENDICES

APPENDIX A
IRB Approval

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Institutional Review Board

Dr. David M. Moore
IRB (Human Subjects) Chair
Assistant Vice Provost for Research Compliance and CVM Phase II - Duckpond Dr., Blacksburg, VA 24061-0442
Office: 540/231-4991; FAX: 540/231-7336
e-mail: moored@vt.edu

16 May 2000

MEMORANDUM

TO: Martha Foy
FCD

FROM: David M. Moore

SUBJECT: IRB EXEMPTION APPROVAL – "Family Systems Variables as Predictors of Overeating Styles and Overweight" – IRB #00-198

I have reviewed your request to the IRB for exemption for the above referenced project. I concur that the research fell within the exempt status. Retroactive approval of this completed project is granted effective the date of this memorandum.

APPENDIX B
Letter Requesting School Board Permission

May 10, 1999

Mr._____
_____County School Board
_____,VA 24---

Dear Mr._____,

I am writing to follow up on our recent phone conversation. As you may recall, I asked you for access to the _____County school system employees to use as my sample for my dissertation. I would like to take this opportunity to elaborate on my request.

The purpose of my dissertation is to study certain family system variables (i.e., family interactional patterns) as they relate to several eating styles (e.g., chronic dieting, binge eating, etc.). It is my hope that such a study will assist clinicians in developing more effective holistic treatment plans for patients who struggle with weight or eating problems. Further, it is my aim to learn more about appropriate feeding patterns in child-hood as a means of preventing certain eating problems.

I am interested in surveying any employee who is willing to participate, regard-less of age, job position, weight, or marital/family status. Some of the survey questions may be considered personal to some people. For this reason, it is necessary that I emphasize to you and potential participants that participation is completely voluntary and confidential. Survey participants will be asked to <u>not</u> put their names on questionnaires. Self-addressed, stamped envelopes will be provided to participants so surveys can be returned directly to me with no risk of access by others. No one will see the surveys but me, and I will not know which survey was filled out by whom. As an incentive, I am offering ten $20 gift certificates to randomly selected participants.

If you and the committee are able to grant my request, I am open to your suggestions about how to distribute surveys most effectively. I have tentatively thought of making arrangements with each principal and departmental supervisor to attend staff meetings; during these meetings I would ask for 10 minutes to explain the study and its confidentiality and to give instructions for survey return. If anyone has questions or concerns, please let me know; I would be happy to elaborate on my request further.

Your consideration of my request is greatly appreciated. I will contact you in a few days to discuss your decision. As always, I look forward to serving you and your employees in any way I can.

Sincerely,

Martha Foy, LPC
Reach EAP

APPENDIX C
Letter of Informed Consent

Dear Employee,

Eating patterns have become an important area of research over the years. These studies are important because some eating patterns affect emotional and physical health. One area of study that needs further exploration is the relationship of eating patterns to family characteristics and functioning. Therefore, I am conducting a project to study this relationship in hopes of providing helpful information to physicians, counselors, and health educators.

You can help us help others by completing this survey. It will take about 15 minutes. Your participation is strictly voluntary and confidential. Please sign this consent form and return it in one of the envelopes that has been provided. Return the survey in the other envelope after answering all questions that apply to you; do NOT put your name anywhere on the survey. As a token of my appreciation, all participants may be entered in a drawing that will take place approximately three weeks after surveys are distributed. To be entered in the drawing, fill out the entry slip that is attached to the survey and return it in one of the envelopes. Ten random winners will receive a $20 gift certificate for a local department store. If you have any questions, call me at 776-5723.

Your participation is valuable and appreciated.

Sincerely,
Martha Foy, LPC
Reach EAP

INFORMED CONSENT TO PARTICIPATE

1. The research you are participating in is being conducted for a doctoral dissertation. The questionnaire you have been given asks about your weight history, eating behaviors, marital and family relationships, and demographic information. Some questions may be considered personal.
2. Your participation in this study is completely voluntary. If you do not wish to participate, you may discard these forms or return them to me in the envelopes that have been provided. Declining to participate will in no way affect your job.
3. Your responses are completely anonymous. Forms are not coded and cannot identify you in any way. No one will have access to the surveys other than the researcher.
4. You must be 18 years of age to participate.
5. If you have questions about this project, you may call one of the faculty chairpersons, Dr. Janet Sawyers at 231-3194 or Mr. Tom Hurd, director of the Virginia Tech Institutional Review Board at 231-5013.

I have read and understand the conditions of this research project and agree to participate.

Printed Name:_____Signature:_____Date:_____
Address:_____City:_____State:_____

APPENDIX D
Survey

Age:____; **Height** (without shoes):_____; **Sex**:____; **Annual household income**:_____

Weight:____ (if you have not weighed in the past month, please do so before responding to this question; if you are pregnant or have been in the past six months, please put your pre-pregnancy weight)
Marital Status: ____single; ____married, how long? ____
Race: _____ Caucasian; _____ African-American; _____ Other

Who lives in your home (check all that apply)? ___spouse, ___children (how many?___)
___significant other/partner; ___parent; ___other relative/friend; ___live alone

Occupation (check one): ____administrator/principal/teacher/counselor/librarian
____clerical/aide ____custodian/maintenance/cafeteria worker/bus driver
Highest level of education achieved?
____did not graduate high school ____ high school/GED ____some college
____college, bachelors degree ____ some graduate work ____ graduate degree

Use the following scale to answer questions about weight:

1	2	3	4	5
underweight	just about right	slightly overweight	moderately overweight	quite overweight

Describe your current weight:	1 2 3 4 5	(Circle responses)
Describe your weight as a very young child:	1 2 3 4 5	
Describe your weight in elementary school:	1 2 3 4 5	
Describe your weight in high school:	1 2 3 4 5	
Describe your weight at college age:	1 2 3 4 5	
Descibe your weight in your twenties:	1 2 3 4 5	
Describe your weight in your thirties:	1 2 3 4 5 N/A	
Describe your weight in your forties:	1 2 3 4 5 N/A	
Describe your weight in your fifties:	1 2 3 4 5 N/A	
Describe your weight in your sixties:	1 2 3 4 5 N/A	
Describe your spouse's/partner's current weight:	1 2 3 4 5 N/A	
Describe your children's weights and ages: Child #1:	1 2 3 4 5 N/A	Age: _____
Child #2:	1 2 3 4 5 N/A	Age: _____
Child #3:	1 2 3 4 5 N/A	Age: _____
Child #4:	1 2 3 4 5 N/A	Age: _____

Please answer questions 1-14 by circling 1 through 5 on the following scale:
1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often

1. If you have put on weight, do you eat less than you usually do?	1 2 3 4 5
2. How often do you refuse food or drink offered because you are concerned about your weight?	1 2 3 4 5
3. Do you deliberately eat low calorie or diet foods?	1 2 3 4 5
4. Do you deliberately eat less in order not to become heavier?	1 2 3 4 5
5. Do you have the desire to eat when you are irritated or upset?	1 2 3 4 5
6. Do you have a desire to eat when you are feeling lonely?	1 2 3 4 5
7. Do you have a desire to eat when you are dreading something unpleasant to happen?	1 2 3 4 5
8. Do you get the desire to eat when you are anxious, worried, or tense?	1 2 3 4 5
9. Do you have a desire to eat when things are going against you or when things have gone wrong?	1 2 3 4 5
10. Do you have a desire to eat when you are bored or restless?	1 2 3 4 5
11. If food tastes good to you, do you eat more than usual?	1 2 3 4 5
12. If you see or smell something delicious, do you have a desire to eat it?	1 2 3 4 5
13. If you see others eating, do you also have the desire to eat?	1 2 3 4 5
14. When preparing a meal, are you inclined to eat something?	1 2 3 4 5

Sometimes people eat more than they intend to in a way that feels out of control. This is called binge eating. **Do you ever binge eat?____. If so, answer questions 15-22 by circling the response that best describes you. If you never binge, skip to question 23.**

15. How often do you binge eat?
    a. seldom; b. once or twice a month; c. once a week; d. almost every day
16. What is the average length of a binge eating episode?
    a. less than 15 minutes b.15 minutes to an hour
    c. one hour to four hours d. more than four hours
17. Which of the following statements best applies to your binge eating?
    a. I eat until I have enough to satisfy me b. I eat until my stomach feels full
    c. I eat until my stomach is painfully full d. I eat until I can't eat any more
18. How often do you ever vomit after a binge?
    a. never b. sometimes c. usually d. always
19. If you have ever vomited after a binge, have you done so in the last six months?_____
20. How much are you concerned about your binge eating?
    a. not bothered at all b. bothers me a little
    c. moderately concerned d. a major concern
21. Which best describes your feelings during a binge?
    a. I feel that I could control the eating if I chose
    b. I feel that I have at least some control
    c. I feel completely out of control
22. Which of the following describes your feelings after a binge?
    a. fairly neutral, not too concerned; b. moderately upset; c. I hate myself

The following questions (23 through 33) pertain to how things were when you were growing up. The use of the word "parent" refers to your parent or the guardians who reared you. Please circle the response that most accurately describes your childhood using the following scale: **1= never; 2= seldom; 3= sometimes; 4= often; 5= very often**

23. When my parent wanted me to do something (such as a chore), s/he would promise me a snack when I did what s/he wanted me to. 1 2 3 4 5
24. If I accomplished something special, my parent would take me out to eat or make a special food for me. 1 2 3 4 5
25. My parent gave me something to eat when s/he wanted me to be quiet or settled. 1 2 3 4 5
26. My parent punished my bad behavior by not letting me have a favorite snack or dessert. 1 2 3 4 5
27. When I felt sad, bored, or upset, my parent would make or buy a special food for me. 1 2 3 4 5
28. My parent made a nice meal or special food as a way of showing his/her love to me. 1 2 3 4 5
29. Sharing a special food or meal with my parent was a good way to feel close to him/her. 1 2 3 4 5
30. I felt uncomfortable turning down food that my parent offered. 1 2 3 4 5
31. I felt free to express dislike of a food that my parent had prepared. 1 2 3 4 5
32. My parents disagreed about what I should eat or how much I ate. 1 2 3 4 5
33. When my parents were upset with one another, I ate more than usual. 1 2 3 4 5

The remainder of the questions refer to your relationships with your parents, mate, and children. If parents are deceased, answer the questions as you remember your relationship with them to have been. "Mate" refers to a spouse, fiance, partner, or significant other; if you do not have a significant other, put N/A (not applicable) beside the questions about mates. If you do not have children, put N/A beside the questions about children. For questions 34-43 use the following scales to rate the **quality** and **satisfaction** with the following relationships: (circle responses)

Quality

1	2	3	4	5
excellent	good	fair	poor	very poor

Quality of your relationship with:

34. your mate 1 2 3 4 5
35. your children 1 2 3 4 5
36. your mother 1 2 3 4 5
37. your father 1 2 3 4 5

Satisfaction

1	2	3	4	5
very satisfied	satisfied	neutral	dissatisfied	very dissatisfied

Satisfaction with your relationship with:

38. your mate 1 2 3 4 5
39. your children 1 2 3 4 5
40. your mother 1 2 3 4 5
41. your father 1 2 3 4 5

How satisfied are you with the frequency of contact (letter, phone, in person) which you have with your mother and father: (use answer scale from previous page)

42. your mother 1 2 3 4 5 43. your father 1 2 3 4 5

Use the following scale to answer questions 44-46:

1	2	3	4	5
totally responsible	very responsible	moderately responsible	a little responsible	not at all responsible

44. When your mate is having a distressing problem at work, to what extent do you feel personally responsible to provide a solution to the problem? 1 2 3 4 5
45. When one of your parents is having a distressing problem, to what extent do you feel personally responsible to provide a solution to the problem? 1 2 3 4 5
46. When your parents are having a significant problem in their marriage, to what extent do you feel personally responsible to provide a solution to their problem? 1 2 3 4 5

Use the following situation and scale to answer questions 47-50:

You invite only one of your parents and not the other parent to dinner alone with you even though the other parent is interested and available.

1	2	3	4	5
extremely	very	moderately	a little	not at all

How comfortable would you be dining and having intimate conversation with the invited parent? 47. mother invited 1 2 3 4 5 48. father invited 1 2 3 4 5

How guilty would you feel if you did not invite the other parent?

49. mother not invited 1 2 3 4 5 50. father not invited 1 2 3 4 5

Use the following scale to answer items 51-81:

1	2	3	4	5
strongly agree	agreed	neutral	disagree	strongly disagree

51. My sex life with my mate is quite satisfactory. 1 2 3 4 5
52. If I were to become thinner, my mate may want to have sex more often than I do. 1 2 3 4 5
53. If my mate were to be more affectionate, I would eat less. 1 2 3 4 5
54. My mate and I have many interests which we choose to share. 1 2 3 4 5
55. My mate and I frequently talk together about the significant events in our lives. 1 2 3 4 5
56. My mate and I frequently show tenderness toward each other. 1 2 3 4 5
57. My mate and I are fair in our relationship with each other. 1 2 3 4 5
58. My mate wants to hear everything that happens while I am away from him/her. 1 2 3 4 5
59. I want to hear everything that happens while my mate is away from me. 1 2 3 4 5
60. My mate worries that I cannot take care of myself when he/she is not around. 1 2 3 4 5
61. I worry that my mate cannot take care of himself/herself when I am not around. 1 2 3 4 5
62. I can depend on my mate knowing what I really feel whether I tell him/her or not. 1 2 3 4 5
63. I am usually able to disagree with my mate without losing my temper. 1 2 3 4 5
64. My mate is usually able to disagree with me without losing his/her temper. 1 2 3 4 5
65. I help my mate understand me by telling him/her how I think, feel, and believe. 1 2 3 4 5
66. My mate helps me to understand him/her by telling me how he/she thinks, feels, and believes. 1 2 3 4 5
67. I feel my mate says one thing to me and really means another. 1 2 3 4 5
68. My mate feels that I say one thing to him/her and really mean another. 1 2 3 4 5
69. I share my true feelings with my mother about the significant events in my life. 1 2 3 4 5
70. I share my true feelings with my father about the significant events in my life. 1 2 3 4 5

71. I openly show tenderness toward my mother. 1 2 3 4 5
72. I openly show tenderness toward my father. 1 2 3 4 5
73. I am fair in my relationship with my mother. 1 2 3 4 5
74. I am fair in my relationship with my father. 1 2 3 4 5
75. My mother and I have mutual respect for each other. 1 2 3 4 5
76. My father and I have mutual respect for each other. 1 2 3 4 5
77. My present day problems would be fewer or less severe if my parents had acted or behaved differently. 1 2 3 4 5
78. My parents frequently try to change some aspect of my personality. 1 2 3 4 5
79. I am usually able to disagree with my parents without losing my temper. 1 2 3 4 5
80. I usually help my parents understand me by telling them how I think, feel, believe. 1 2 3 4 5
81. My parents say one thing to me and really mean another. 1 2 3 4 5

Answer questions 82 to 97 only if you have children and use the following scale:

1	2	3	4	5
all the time	frequently	occasionally	rarely	never

82. How often do you or your mate share private and personal information about your marriage with your son or daughter? 1 2 3 4 5
83. It feels like my children cannot get emotionally close to me or my mate without moving away from the other one of us. 1 2 3 4 5
84. Childrens' problems (behavior, school, physical illness) sometimes coincide with marital conflict or other stress in families. In your view, how often does this happen in your family? 1 2 3 4 5
85. How often do you and your mate disagree about specific ways to treat your child (i.e., how to discipline or how to respond to requests for money or privileges)? 1 2 3 4 5
86. How often do you intervene in a disagreement between your mate and your son or daughter? 1 2 3 4 5
87. How often does your mate intervene in a disagreement between you and your son or daughter? 1 2 3 4 5
88. When I want my child to do something, I promise him/her a food treat if he/she will do what I want.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
89. When my child accomplishes something special, I take him/her out to eat or prepare a special food for him/her.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
90. I have given my child something to eat when I want him/her to be quiet or calm.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
91. When my child misbehaves, I punish him/her by not letting him/her have a snack, dessert, or meal.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
92. When my child is down, bored, or upset, I offer him/her a food that he/she likes.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
93. I show love to my child by making special foods or meals for him/her.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
94. Sharing a special food or meal with my child is a good way to feel close to him/her.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
95. It hurts my feelings when my child doesn't like the food I've prepared.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
96. It bothers me when my child doesn't eat as much as I think he/she should.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5
97. My spouse and I disagree about what or how much our child should eat.
Child #1: 1 2 3 4 5; Child #2: 1 2 3 4 5; Child #3: 1 2 3 4 5; Child #4: 1 2 3 4 5

THANK YOU VERY MUCH FOR YOUR TIME
AND FOR YOUR WILLINGNESS TO HELP !

APPENDIX E
Author and Publisher Permission Letters

One of the authors of the PAFS-Q (James Bray, Ph.D.) was contacted regarding permission to use the instrument. He initially stated that permission would most likely be granted after receipt of a written description of the proposed study. After weeks of not receiving permission, it was determined that the written request was lost in the mail (James Bray, personal communication, May, 2000). The written request was resubmitted immediately and permission from the author is forthcoming.

APPENDIX F
PAFS-Q

PAFS

Personal Authority in the Family System Questionnaire

BY
Donald S. Williamson, Ph.D., James H. Bray, Ph.D., Paul E. Malone, Ph.D.

The following questions ask about your **current** relationships with your parents, your spouse and your children. Please select the answers which best reflect your current relationships with these people. There are no right or wrong answers. Place your answers on the Answer Sheet provided. Do not mark on the Questionnaire. **Remember: Give the answer that best applies to you.**

If you are currently not married answer the questions below as they would apply to your relationship with your most important, current significant other (i.e., mate, steady friend, lover). If you do not have a significant other, then answer the questions as they might apply to your most likely or most recent significant other.

If one or both of your parents are deceased, then answer the questions about your deceased parent(s) in terms of how you remember or imagined your relationship(s) to be.

If you do not have children, leave the questions about children blank.

Please answer all questions as best you can. Place your answer in the appropriate place on the Answer Sheet.

Revision 9/1/83

Personal Authority in the Family System
Questionnaire

For questions 1 to 10 use the following scales to rate the **quality** and **satisfaction** with the following relationships:

Quality

1	2	3	4	5
excellent	good	fair	poor	very poor

Quality of your relationship with:

* 1. Your mate
* 2. Your children
* 3. Your mother
* 4. Your father

Satisfaction

1	2	3	4	5
very satisfied	**satisfied**	**neutral**	**dissatisfied**	**very dissatisfied**

Satisfaction with your relationship with:

* 5. Your mate
* 6. Your children
* 7. Your mother
* 8. Your father

How **satisfied** are you with the frequency of contact (letter, phone, in person) which you have with your mother and father:

* 9. Mother
* 10. Father

Use the following scale to answer questions 11 to 13:

1	2	3	4	5
totally responsible	very	moderately responsible	a little	not at all responsible

* 11. When your mate is having a distressing problem at work, to what extent do you feel **personally** responsible to provide a solution to the problem?

* 12. When one of your parents is having a distressing problem, to what extent do you feel **personally** responsible to provide a solution to the problem?

* 13. When your parents are having a significant problem in their marriage, to what extent do you feel **personally** responsible to provide a solution to their problem?

How does your job success and satisfaction compare to your parents' job success and satisfaction?

1	2	3	4	5
much less	less	same	more	much more

Mother's	14. Financial Success	15. Emotional Satisfaction
Father's	16. Financial Success	17. Emotional Satisfaction

Use the following scale to answer questions 18 to 21:

1	2	3	4	5
all the time	**most of the time**	**half the time**	**occasionally**	**never**

How often do you think of your self as your mother and/or father's "little boy/girl"?

18. Mother
19. Father

20. How reluctant are you to do anything that would elicit an intense emotional response from your parents, such as anger, hurt, shock, or embarrassment?

21. How often do you seek parental approval (for example how you should handle a personal problem or make an important decision, etc.)?

* Indicates questions used in survey

How necessary is it to you to meet your parents' expectations concerning your:

1	2	3	4	5
extremely important	very important	moderately important	a little important	not at all important

Work: 22. Mother 23. Father
Marriage: 24. Mother 25. Father
Parenting: 26. Mother 27. Father
Appearance: 28. Mother 29. Father
Life Style: 30. Mother 31. Father

How often do your feel you must modify your behavior to meet your parents' expectations concerning your:

1	2	3	4	5
all the time	most of the time	half the time	occasionally	never

Work: 32. Mother 33. Father
Marriage: 34. Mother 35. Father
Parenting: 36. Mother 37. Father
Appearance: 38. Mother 39. Father
Life Style: 40. Mother 41. Father

Use the following situation and scale to answer questions 42 to 51:

You invite only one of your parents and not the other parent to dinner alone with you even though the other parent is interested and available.

1	2	3	4	5
extremely	very	moderately	a little	not at all

How **willing** would you be to do this?
* 42. Mother invited * 43. Father invited

How **comfortable** would you be doing this?
* 44. Mother invited * 45. Father invited

How **unfair** would it be to do this to your mother/father or their marriage?
* 46. Mother * 47. Father

How **comfortable** would you be dining and having intimate conversation with the invited parent?
* 48. Mother invited * 49. Father invited

How **guilty** would you feel if you did not invite the other parent?
* 50. Mother not invited* 51. Father not invited

Use the following scale to answer items 52 to 105:

1	2	3	4	5
strongly agree	agree	neutral	disagree	strongly disagree

* 52. My sex life with my mate is quite satisfactory.
* 53. My mate and I have many interests which we choose to share.
* 54. My mate and I frequently talk together about the significant events in our lives.
* 55. My mate and I like to get together for conversation and recreation.
* 56. My mate and I can trust each other with the things that we tell one another.
* 57. My mate and I frequently show tenderness toward each other.
* 58. My mate and I are fair in our relationship with each other.
* 59. My mate and I have mutual respect for each other.
* 60. My mate and I are fond of each other.

* Indicated questions used in survey

Use the following scale to answer questions 106 to 115:

1	2	3	4	5
very comfortable	comfortable	neutral	uncomfortable	very uncomfortable

106. How comfortable are you having sexual relations in the privacy of your own bedroom when your parents are in your home?
107. How comfortable are you talking to your mother and father about the private and personal **story of growing up** in his/her family of origin and extended family (i.e., talking about perceptions, thoughts, and feelings about their relationships with father, mother, siblings, aunts, uncles, etc.)?
108. How comfortable are you talking to your mother and father about **family secrets** both real and imagined, and about skeletons in the family closet?
109. How comfortable are you talking to your father and mother about specific **mistakes or wrong decisions** which he/she made in the past and would like to do again differently (e.g., marriage, marriage partner, occupation, etc.)?
110. How comfortable are you talking to your **opposite-sex parent** about the fact that that parent is no longer the #1 love in your life?
111. How comfortable are you talking to your **same-sex parent** to declare openly the ways in which you are different from that parent in your beliefs, values, attitudes, and behavior?
112. How comfortable are you talking **directly** to your father and mother as peers and equals to say goodbye to him and her as "daddy" and "mommy" and goodbye to yourself as a dependent "little boy" or "little girl"?
113. How comfortable are you talking **face to face** with your father and mother to make explicit with them that you are not responsible for his/her survival or happiness in life, and that you are not working to meet goals and achievements in life which have been passed on from them (or prior generations) to you?
114. How comfortable are you talking to your mother and father about his/her **sexuality** and **sexual experience**?
115. How comfortable are you talking to your father and mother about his/her **approaching death**, as to when, where, how, and with what attitude and feelings each of them anticipates this inevitability?

Please indicate in questions 116 to 124 whether you **have** or **have not** discussed the above with your parents. Mark a **1** if you **have not** discussed the topic or a **2** if you **have** discussed the topic.

1=have not discussed 2=have discussed

116. Topic in question 107
117. Topic in question 108
118. Topic in question 109
119. Topic in question 110
120. Topic in question 111
121. Topic in question 112
122. Topic in question 113
123. Topic in question 114
124. Topic in question 115

ANSWER QUESTIONS 125 TO 132 ONLY IF YOU HAVE CHILDREN

Use the following scale to answer questions 125 to 132:

1	2	3	4	5
all the time	frequently	occasionally	rarely	never

* 125. How often do you share private and personal information about your marriage with your son or daughter?
* 126. How often does your mate share private and personal information about your marriage with your son or daughter?
* 127. It feels like my children cannot get emotionally close to me without moving away from my mate.
* 128. It feels like my children cannot get emotionally close to my mate without moving away from me.
* 129. Childrens' problems (behavior, school, physical illness) sometimes coincide with marital conflict or other stress in families. In your view how often does this happen in your family?
* 130. How often do you and your mate disagree about specific ways to treat your child (i.e., how to discipline or how to respond to requests for money or privileges)?
* 131. How often do you intervene in a disagreement between your mate and your son or daughter?
* 132. How often does your mate intervene in a disagreement between you and your son or daughter?

* Indicates questions used in survey

APPENDIX G
DEBQ

Dutch Eating Behavior Questionnaire (DEBQ) by Van Strien, Frijters, Bergers, and Defares (1986)

1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often

Restrained Eating Questions

*1.____If you have put on weight, do you eat less than you usually do?
2.____Do you try to eat less at mealtimes than you would like to eat?
*3.____How often do you refuse food or drink offered because you are concerned about your weight?
4.____Do you watch exactly what you eat?
** 5.____Do you deliberately eat foods that are slimming?
6.____When you have eaten too much, do you eat less than usual the following days?
*7.____Do you deliberately eat less in order not to become heavier?
8.____How often do you try not to eat between meals because you are watching your weight?
9.____How often in the evening do you try not to eat because you are watching your weight?
10.____Do you take into account your weight with what you eat?

Emotional Eating Questions

***11.____Do you have the desire to eat when you are irritated?
12.____Do you have a desire to eat when you have nothing to do?
13.____Do you have a desire to eat when you are depressed or discouraged?
*14.____Do you have a desire to eat when you are feeling lonely?
15.____Do you have a desire to eat when someone lets you down?
16.____Do you have a desire to eat when you are cross?
**17.____Do you have a desire to eat when you are approaching something unpleasant to happen?
*18.____Do you get the desire to eat when you are anxious, worried, or tense?
*19.____Do you have a desire to eat when things are going against you or when things have gone wrong?
20.____Do you have a desire to eat when you are frightened?
21.____Do you have a desire to eat when you are disappointed?
***22.____Do you have a desire to eat when you are emotionally upset?
*23.____Do you have a desire to eat when you are bored or restless?

*Question used as is in the survey
**Question used in survey after rewording
*** Two questions put together to form one question in survey

External Eating Questions

*24.____If food tastes good to you, do you eat more than usual?
25.____If food smells and looks good, do you eat more than usual?
*26.____If you see or smell something delicious, do you have a desire to eat it?
27.____If you have something delicious to eat, do you eat it straight away?
28.____If you walk past the baker, do you have a desire to buy something delicious?
29.____If you walk past a snackbar or café, do you have the desire to buy something delicious?
*30.____If you see others eating, do you also have the desire to eat?
31.____Can you resist eating delicious foods?
32.____Do you eat more than usual when you see others eating?
*33.____When preparing a meal, are you inclined to eat something?

*Question used in survey

Note. Question #1 was excluded from the analysis due to respondents' confusion about the question.

APPENDIX H
Binge Scale Questionnaire

Binge Scale Questionnaire by Hawkins and Clement (1980)

*1. How often do you binge eat?
   a. seldom
   b .once or twice a month
   c. once a week
   d. almost every day

*2. What is the average length of a binge eating episode?
   a. less than 15 minutes
   b. 15 minutes to an hour
   c. one hour to four hours
   d. more than four hours

*3. Which of the following statements best applies to your binge eating?
   a. I eat until I have enough to satisfy me
   b. I eat until my stomach feels full
   c. I eat until my stomach is painfully full
   d. I eat until I can't eat anymore

**4. Do you ever vomit after a binge?
   a. never
   b. sometimes
   c. usually
   d. always

5. Which of the following best applies to your eating behavior when binge eating?
   a. I eat more slowly than usual
   b. I eat about the same as I usually do
   c. I eat very rapidly

*6. How much are you concerned about your binge eating?
   a. not bothered at all
   b. bothers me a little
   c. moderately concerned
   d. a major concern

*7. Which best describes your feelings during a binge?
   a. I feel that I could control the eating if I chose
   b. I feel that I have at least some control
   c. I feel completely out of control

*8. Which of the following describes your feelings after a binge?
   a. I feel fairly neutral, not too concerned
   b. I am moderately upset
   c. I hate myself

9. Which most accurately describes your feelings after a binge?
   a. not depressed at all
   b. mildly depressed
   c. moderately depressed
   d. very depressed

*question used as is; **question reworded

APPENDIX I
Childhood Feeding Questions

Childhood Feeding Questions, Part 1 (Family of Origin)

1 = never; 2 = seldom; 3 = sometimes; 4 = often; 5 = very often

23. When my parent wanted me to do something (such as a chore), s/he would promise me a snack when I did what s/he wanted me to.
24. If I accomplished something special, my parent would take me out to eat or make a special food for me.
25. My parent gave me something to eat when s/he wanted me to be quiet or settled.
26. My parent punished my bad behavior by not letting me have a favorite snack or dessert.
27. When I felt sad, bored, or upset, my parent would make or buy a special food for me.
28. My parent made a nice meal or special food as a way of showing his/her love to me.
29. Sharing a special food or meal with my parent was a good way to feel close to him/her.
30. I felt uncomfortable turning down food that my parent offered.
31 I felt free to express dislike of a food that my parent had prepared.*
32. My parents disagreed about what I should eat or how much I ate.
33. When my parents were upset with one another, I ate more than usual.**

Note. For the purposes of the regression analyses, questions were classified and labeled as follows:

Coersive Use of Food (#23, #25, and #26)
Food as a Reward (#24)
Expression of Love Through Food (#27, #28, and #29)
Feeding Enmeshment (#30 and #31)
Parental Disagreement About Food (#32)

*coded in reverse
**omitted from regression analyses

Childhood Feeding Questions, Part 2 (Nuclear Family)

88. When I want my child to do something, I promise him/her a food treat if he/she will do what I want.
89. When my child accomplishes something special, I take him/her out to eat or prepare special food for him/her.
90. I have given my child something to eat when I wanted him/her to be quiet or calm.
91. When my child misbehaves, I punish him/her by not letting him/her have a snack, dessert, or meal.
92. When my child is down, bored, or upset, I offer him/her a food that he/she likes.
93. I show love to my child by making special foods or meals for him/her.
94. Sharing a special food or meal with my child is a good way to feel close to him/her.
95. It hurts my feelings when my child doesn't like the food I've prepared.
96. It bothers me when my child doesn't eat as much as I think he/she should.
97. My spouse and I disagree about what or how much our child should eat.

Note. For the purposes of the regression analyses, questions were classified and labeled in the following manner:

Coersive Use of Food (#88, #90, and #91)
Food as a Reward (#89)
Expression of Love Through Food (#92, #93, and #94)
Feeding Enmeshment (#95 and #96)
Spousal Disagreement About Feeding (#97)

APPENDIX J
Questions Related to Sexuality

Sexual Attitude Questions

1 = strongly agree; 2 = agreed; 3 = neutral; 4 = disagree; 5 = strongly disagree

52. If I were to become thinner, my mate may want to have sex more often than I do.
53. If my mate were more affectionate, I would eat less.

Note. Responses were coded in reverse such that higher scores indicated higher agreement with the statement. For the purposes of the regression analyses, question #52 was labeled Sexavoid and question #53 was labeled Deprived.

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