

AN ETHNOGRAPHIC ANALYSIS
OF THE FAMILY DYNAMICS
OF THE OBESE ADOLESCENT

by

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(ABSTRACT)

The purpose of this study was to examine adolescent obesity as it interacted with and was perceived by the family system. The study was an ethnographic analysis whose goals were to understand the meaning obesity had for the family and how the dynamics of the family interacted with the obesity. The respondents in the study were five female adolescents and their nuclear families. They participated in an interview process which included ethnographic and circular questioning, nutritional and diet histories, and Faces II. The results were analyzed in accordance with ethnographic methodology. A number of findings emerged from the study. Among these were the presence of a family obesity system, three distinct stages of obesity development within the family and the existence of a dysfunctional obesogenic family system which negatively influenced the obese adolescent. Suggestions for further study included empirical research into the findings of this study and the development of an instrument that would empirically measure the dynamics of child and adolescent obesity.

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CHAPTER I

INTRODUCTION

Although there exists widespread disagreement as to the etiology of both childhood and adolescent obesity (LeBow, 1984), there is little disagreement as to its deleterious effects. Obesity has been shown to be a causal factor in physical health problems (Van Itallie, 1979), lack of social acceptance (Allon, 1979), and poor self-concept (Brownell, 1984).

Obese adults also experience negative effects of excess weight (Van Itallie, 1983), but the overweight adolescent is particularly susceptible to lasting psychological and emotional harm from being obese (Guthrie, 1971). Only twenty percent of obese children ever overcome their weight problem (Brownell, 1983) and of those children who remain obese throughout their teen years, only four percent ever obtain a normal weight (Stunkard, 1973).

Studies of weight treatment programs reflect the resistance of obesity to amelioration. Stunkard (1970), in a review of treatment outcome studies, summarized this problem in stating that most clients will not stay in treatment; and, of those who do, most do not lose weight; of those who lose weight, most will regain it. This pessimism has continued to be supported in later reviews of treatment outcome (Harris, 1980; Stunkard, 1984; Stalanos, 1985), which repeatedly find that no treatment approach can substantiate long-term maintenance of weight loss.

A major difficulty in research and treatment has been the fact that many researchers and clinicians treat obesity as a unitary

dysfunction rather than as a result of different etiological forces. Prugh (1961) argued that obesity is a syndrome with multiple etiologic forces which operate in predisposing, contributory, precipitating, and perpetuating fashion. He sees these etiologic forces as including psychologic, interpersonal, familial, cultural, genetic, constitutional, hypothalamic, hormonal, and metabolic factors. This view, which has been supported by others (Hirsch, 1978; Kaplan, 1957; Mayer, 1980), argues for a systemic view of obesity where multiple causal factors would be examined in interaction. So rather than focus on obesity, one should speak of the "obesities" (Young, 1964).

Most research projects and treatment programs, however, take a linear view in focusing on one primary causal factor; and, no studies have investigated the question of which types of obesity are, at what developmental stages, most susceptible to which etiologic influences. In fact, adolescent and childhood onset obesity receives much less study than adult onset obesity. For instance, LeBow (1980) reported that of the one-hundred-forty behavioral papers dealing with obesity which were published between 1962 and 1976, only eleven dealt with child or adolescent obesity.

Research into family dynamics is even more rudimentary. Most published reports are either single case studies or behavioral therapy studies of the family as a part of the treatment regime (Barbarin and Tirado, 1984). Studies of the etiological importance of the family are rare. Consequently, Hertzler (1981) has suggested that so little is yet known about familial influences that participant observations would be an appropriate means to initiate research into possible links

between obesity and the family.

This study utilized ethnomethodology in the study of five obese adolescent women in the context of their families. The goal was to learn from the respondent families what meaning obesity had for them and in what way the family system interacted with other etiological factors in the predisposition, initiation, and perpetuation of the obesity.

CHAPTER II

LITERATURE REVIEW

The contributions of the family to the pathogenesis of adolescent obesity is intrinsically part of the debate over the relative influences of environmental versus biological factors. Foremost among the physiological explanations for obesity is the "set point" theory. It proposes that individuals have a programmed body weight; and the body utilizes homeostatic mechanisms to maintain this set weight (Nisbett, 1972). Thus, if individuals dieted and lost weight, they would eventually gain back this weight until they had re-established their "set point". This theory is genetic based. It presumes an inheritable tendency to be a certain weight range. Twin studies support this (Brook, Huntley and Slack, 1975; Borieson, M., 1976) and a recent twins study of human obesity (Stunkard, et al, 1986) provides further support for the hypothesis that genetic influences are important determinants of body fat.

There is substantial support for the "set point" theory. In fact, in reviewing the literature, Stunkard (1981) stated that the evidence for the regulation in normal weight animals is clear and unequivocal. Much of regulation theory is grounded upon studies of Zucker "fatty" rats and ventromedial hypothalamically lesioned (VMH) rats (Keeseey and Corbett, 1983; Marosovsky and Powley, 1977; Keeseey, Boyle, and Ogioloile, 1974; Stevenson and Montemurro, 1963). The Zucker "fatty" rats have been shown to maintain an elevated body weight despite attempts to manipulate this weight. The VMH rats also maintain an

abnormally high body weight which resists reduction. One theory states that the hypothalamus controls hunger in the lateral hypothalamus and satiety through the ventromedial hypothalamus (Stellar, 1976). This view has been greatly modified in the light of recent evidence (Van Itallie, 1983) which has established that there are diffuse excitatory and inhibitory neuronal systems in control of the feeding course through the limbic system and the whole brain.

The mechanism for this control of eating behavior appears to be monoamine-specific neuronal pathways (Geratline, 1977) which operate through serotonin-releasing neurons (Wurtman and Wurtman, 1983). The importance of this process has been highlighted by research in anorexia nervosa which supports the importance of serotonin in all eating disorders (Garfinkel and Garner, 1983).

Although experiments in altering the hypothalamus of laboratory animals support the existence of a mechanism for regulating body weight, it does not answer the underlying question of how the body actually accomplishes this. It is widely agreed that there must be some form of metabolic adaptation (Boyle, Storlien, and Keeseey, 1978) although there is, as yet, no consensus as to what form it takes (Blaxter, 1973). One of the most promising theories is that thermogenesis (heat production) is responsible for a major portion of metabolic adaptation (McMinn, 1981; Rothwell and Stock, 1979a). Brown adipose tissue has been linked as a mediator of diet-induced and nonshivering thermogenesis (Rothwell and Stock, 1979b) with its activity affected by the ventromedial hypothalamus (Trayburn, Thurlby, Goodbody, and Jones, 1981; Gerandies, 1981). Although all studies to

date have been with laboratory animals and not human subjects, there is research to support brown adipose tissue as a variable in the development of obesity (Himms-Hagen, 1979).

If the interaction of brown adipose tissue and the hypothalamus were the sole mechanism for establishing and maintaining body weight set point, then environmental variables would be of minor importance. In this case, the obese person's family would not be an etiological factor except in a genetic sense. The goal of treatment would be to teach family members to learn to accept the adolescent's weight problem so as not to cause undue stress by encouraging the impossible (Wooley and Wooley, 1983).

There is, however, a third variable which can explain set point in context of environmental factors. Faust (1983) hypothesized a theory of obese plateaus where the body adjusts to an imbalance of food input and energy output by bringing input into balance. Using rat studies, Faust determined that diet can be a major factor in establishing at what level the obese plateaus. These findings indicate that a period of diet-induced overweight has a lasting effect. After a period of diet-induced overweight, normal energy balance can resume but without a return to the original low fat mass. This is attributed to the development of hypertrophic fat cells.

Hirsch (1969) initially proposed that obesity was a result of two distinct processes: Hypertrophic adipose cell development which is an increase in cell number and hyperplastic cell development which is an increase in the mass of existing cells. He hypothesized that the development of hypertrophic cells made it more difficult to lose

weight. Others (Bjornthorp, 1980; Knittle and Ginsberg, 1980; Stunkard, 1983; Keesey and Corbett, 1983) have found support for this theory. There have been, however, questions concerning cell measurement methodology (Ashwell and Garrow, 1973; Widdowson and Shaw, 1973) and Sjostrom (1981) failed in a study of thirty-seven patients to find support for Hirsch's thesis.

Overall, the weight of evidence does support Hirsch's and Faust's concepts. Such a "biological plateau" concept would integrate set point theory and its genetic base with environmental influence. From this view, factors such as family influence could lead to an imbalance in eating, weight gain, and, eventually, a gradual increase in fat cell number. This would raise the set point and have a ratchet-like effect with each subsequent gain. This was also supported by Stunkard in his genetic study (1986) of obesity in a Danish population. In this group there was an increase in severe obesity from one in a thousand to seven in a thousand during a sixteen-year period. This could not be explained by change in median body mass in the population. Rather it would indicate that the relationship between genetic and environmental influences can change over time.

In this model, genetic inheritance would provide a parameter but body set point would derive less from genetic predisposition than from environmental factors. This is consistent with other findings. Van Itallie (1979) reviewed changes in body weight over a hundred year period and reported that there has been a consistent gain in the American males' mean body weight since 1863. He also reported that the American male and female experience a steady weight gain throughout

their adult life until they reach age sixty. A genetic "set point" could not account for such weight changes across time or the individual life cycle.

Van Itallie (1979) concludes that much human obesity results from an interaction between the sedentary individual and his food-laden environment. This is supported by research into physical activity and obesity (Stern, 1983) which has found exercise to be a major factor in regulating the fat content of the body. This is accomplished through both caloric expenditure and changes in basal metabolism.

Demographic studies provide further support for environmental influence of the environment on "set point". The Mid-Town Study (Goldblatt, 1965) found strong correlations between obesity and socio-economic status. This study found that, while thirty percent of the lower class subjects were obese, only sixteen percent of the middle class and five percent of the upper class were obese. Correlations were also found between weight, ethnic, and religious differences. Other studies (Stunkard, 1980) have supported the Mid-Town findings. Studies of children (LeBow, 1984) have found correlations of obesity with age, socio-economic status, and sex. This evidence has led Stunkard (1980) to conclude that social factors must be considered as among the most, if not the most, important influence on the prevalence of obesity.

Parent/child weights also reflect a strong correlation that suggest that one's level of fatness follows family lines (Stunkard, 1980, Garn, Pilkington, and LaVelle, 1983). If both parents are obese, eighty percent of their children will be obese, whereas if neither

parent is obese, only seven percent of their children will be obese. Grandparents also have an effect on the fatness of their grandchildren (Garn, LaVelle, and Pilkington, 1984).

Strong correlations among family members might indicate genetic transmission which would support a biologic set point. This is challenged by the work of Garn and associates (Garn, 1976; Garn, Bailey, and Cole, 1976; Garn, Bailey, and Cole, 1979) in which they reveal that the family environment reflects more than simple genetic inheritance. Parents and their adoptive children share a pattern of obesity much like biological parents and children. Also, children's weight similarities to their parents change over their developmental course. These similarities increase during the adolescent years and decrease when the children become adults and separate from their parents.

Husbands and wives also show fat synchrony in their weight changes (Garn, Bailey, and Cole, 1979). The fat gain of spouses of high fat gainers is five times higher than the fat gain of the spouses of fat-losing spouses.

Other studies have long supported the importance of family environment in the development and maintenance of childhood and adolescent obesity. Bruch (1940) was first to report on the impact of the family environment on the obesity of children. She conducted extensive interviews with forty obese children and their parents which led to the identification of specific family characteristics: a disengaged father, overprotective mother, high emotional value placed on the giving and receiving of food. A major limitation of her study

was her sample. Most of the parents were European immigrants, reducing the generalizability of her results.

Bruch (1958, 1963, 1970, 1971, 1980) has continued to study family involvement in obesity. Her findings emphasized that an intense emotional involvement with parents is an important etiological factor in childhood and adolescent obesity. She also stressed that the eating habits developed in childhood are an integral aspect of family life that would not change without change within the family.

The family environment has also been reported as being causal to the onset of childhood obesity. Stuart (1978) states that the obese are more likely to come from a family with some interpersonal disturbance, and others (Tobias and Gordon, 1980) have proposed that the most significant factor in treatment of obesity is the family environment to which the client returns. Simic (1978) reported that the more obese the child the better he/she serves as an indicator of poor psychosomatic health in the family. Another study reported that the parents had a major role in the development of childhood obesity and stated that when the parents gained insight and decreased their needs for the child's support, the child lost weight (Frazier, 1955). Kaplan and Kaplan (1957) differed from Bruch in stating that they had found no obesogenic family type. They did, however, stress that home environment and family food habits were important causal factors. Like Bruch's work, these studies were primarily clinical and descriptive in nature.

There has been some limited empirical support for family influence. Nathan and Pisula (1980) studied fifteen adolescents on

starvation diets and found that all were a source of special concern for their families and that food was a major mode of relating. Another study (Johnson, Wendell, Severson, and Gastreneau, 1976) examined one-hundred-forty-two subjects over a two year period utilizing the Minnesota Multiphasic Personality Inventory. There were significantly higher T scores and F scores reported among the obese. This could indicate that they had more dissatisfaction in their family and social relationships than non-obese subjects. In another study, one-hundred-forty adolescents (twelve to fourteen years) were evaluated on thirty-four food habits. Family relations and parental love were two of the four factors found that influenced the habits (Hinton, Cheddendon, Eppright, and Waters, 1980). Kirtner, Boss, and Johnson (1981) also evaluated food intake and the family using the Family Environment Scale. The results indicate that there was a significantly negative relationship between the family's dysfunctional environment as indicated by high conflict, control, and organization of the family dietary intake.

Behaviorists have examined the influence of family participation in the treatment of the obese with mixed results. Strand (1980) felt that including the family in treatment was essential. This was supported by other studies (Epstein, Masek and Marshall, 1978; Mitchell and Fisher, 1977). Yet further studies have found no significant difference between subjects with and subjects without family support (Wilson and Brownell, 1978; Brownell and Stunkard, 1980; Kingsley and Shapiro, 1977). All of these studies were flawed by small subject numbers, a lack of adequate controls, and inadequate techniques for

determining weight.

Researchers are beginning to examine obese persons in context of their family system. Barbarian and Tirado (1984) see certain family types, highly cohesive and interdependent, more able to provide support of weight loss. They, however, do not examine the family system as being an etiological factor. A number of the characteristics found by these clinicians and researchers are similar to those proposed by Minuchin (1978) for defining "psychosomatic families". Since Minuchin, several studies have begun to explore the applicability of the psychosomatic model to obesity. Wiley (1979) compared families with and without an obese child utilizing self-report and direct observation. He concluded that these obese families fit the Minuchin model for the psychosomatic family. Garley (1985) studied the obese adult and utilized a well structured research methodology in an attempt to test the systemic properties of these families. His sample of 442 married women was divided into four treatment groups of obese and non-obese subjects. These groups were administered a number of inventories including the Eating Inventory and Faces II. The results were subjected to discriminant analysis. Garley's results provided support for the hypothesis that families with an obese adult, who was in treatment for obesity, would exhibit psychosomatic family characteristics. His findings were confounded somewhat by obtaining less clear findings for obese subjects who were not currently in treatment. Harkaway (1986) has also conducted a pilot study which was reported to support the Minuchin, et al (1978) psychosomatic model. It was flawed by rater bias, limited sample size and lack of standardized

methodology. Consequently, the study only offers limited support for the family psychosomatic model despite its findings.

Despite findings from sociology and family systems that indicate that family dynamics are an important aspect of obesity, none of the authors quoted operationalized their findings into a unified treatment approach. In fact, only one author (Harkaway, 1983) has examined obesity in specific family therapy terms. She looked at obesity on three levels including the cultural, the established treatment system, and the patient interacting with the treatment system. Harkaway identified societal beliefs about obesity in organizing the way clinicians evaluate the problem, and she pointed out how these accepted treatment methods have become solutions which contribute more to the problem than to aiding the patient. Finally, she examined the way the relationship of therapist to patient is isomorphic to the patient's other nontherapeutic relationships where the "helper" pursues the client and attempts to cure them, leading only to a worsening of the disorder. Unlike other authors, Harkaway offers therapeutic solutions including the avoidance of treatments that don't work, the involvement of the family system, and the maintenance of a stance of neutrality. Although she does not offer a discrete model for therapy, she does utilize some of the major therapeutic stances in family therapy (Palazolli, 1982; Watslawick, 1983).

Despite advances in the physiological understanding of obesity there has been no improvement in the treatment of the obese adolescent.

The literature suggests that the family may be a powerful determinant in both the etiology of obesity and in the ability of the person to

lose weight. None of the studies reported here has evaluated the entire family system in its research.

This study examined adolescent obesity in terms of its meaning for the entire family. If family involvement in sustaining obesity could be established, family therapy techniques could assist existing weight loss programs in achieving long-term weight reduction. Since eighty percent of obese adolescents will be obese throughout their life with negative medical, social, and psychological consequences, improvement would have direct and far-reaching effects.

CHAPTER III

METHODS

This study is grounded on a naturalistic paradigm (Guba, 1981). Five respondent families were interviewed and observed for a three-month period. They were assessed through the taking of an obesity history (Merritt, 1980), ethnographic interview (Spradley, 1979), Faces II (Olson, 1982) and an investigator's journal. The information was evaluated through ethnographic analysis (Appendix D).

The respondents were selected, through purposive sampling, from a group of eleven adolescents who had chosen to participate in an adolescent weight reduction program sponsored by a home economics extension agency in their town. The participants were all female ranging in age from 12 years to 17 years old. Their degree of obesity, as measured by height/weight charts and tricep skinfold tests (LeBow, 1984), ranged from eleven percent to ninety-three percent over their recommended weight (Table I).

Of the eleven young women one dropped out of the program and two of the families refused to participate in the study. Of the remaining eight, five were selected purposively to represent as wide a range of characteristics as possible. The most important factors considered were age, the degree of obesity, family structure, and socio-economic status. All respondents were administered a medical exam prior to participation in the program and none presented medical factors that would affect body fat status.

The respondents participated in an eight-week weight reduction program which included weekly meetings consisting of weigh-ins,

nutritional and dieting information, and a fifteen-minute aerobics session. This study's author participated in this program and used it as an opportunity to meet and observe the respondents and their families. During this time observations were collected from the nutritionists who instructed the participants and evaluated them for the program. This evaluation included a test on nutritional knowledge, a 48-hour diet recall and a home visit.

Data for this study were obtained during visits to the respondents' homes. There were from three to five visits with each family. These visits began during the second half of the weight reduction program and continued over a two-month period subsequent to the end of the program. During these visits the family was observed and impressions of the observations were logged. Also, a semi-structured interview was administered (Appendix A). This interview schedule included three distinct instruments: a diet history (Merritt, 1980), an ethnographic interview (Spradley, 1979), a circular questioning protocol (Palazzoli, Boscolo, L., Cecchin, Prata, 1980).

A detailed diet history was necessary given the multiple causal factors that are known to exist for obesity. This history included information on previous dieting attempts, family demographics relating to weight and dieting, patterns of food purchases, eating patterns and a history of physical activity.

The ethnographic interview served as the primary instrument in examining cultural meanings upon which the informants organized their behaviors and interpreted their experiences. Family members were interviewed in accordance with the procedures developed by Spradley

(1979). An interview format (Appendix A) was developed to ensure uniformity in the interview process across families. The interview was not, however, limited to these questions. The interview would also pursue topics provided by the informants so that the actual interviews were a circular feedback process between interviewer and respondent. Examples of areas of interest developed out of this process are provided in Appendix B.

Integrated into the ethnographic interview protocol was the interview technique of circular questioning which had been developed as a clinical method for evaluating family interactional behavior around specific circumstances. This approach has been likened to Bateson's concept of double description which proposed that obtaining views from every side of a relationship and juxtaposing them is required to obtain a sense of the relationship as a systemic whole (Penn, 1982). Circular questioning was used in this study to examine the interactional patterns of the family and the changes that the family may have experienced as the obesity developed.

This study's intent was not to evaluate a hypothesized model for adolescent obesity; but, rather to understand the meanings ascribed to obesity by the individual family. Similarities and differences across families are, however, also of interest. To make comparisons across families it is important to evaluate what contribution heredity and family eating patterns play in weight development and in the families' response to the weight. Consequently, family demographics, obesity history and developmental stages will be evaluated through componential

analysis (Table 2) to assess the obesity across families.

The interviews were recorded on audiotape. The tape contents were subsequently transcribed onto domain analysis worksheets (Appendix C) which are used to organize the data into separate domains of information which all reflect a single semantic relationship. Once all the interview data had been categorized into discrete domains, a taxonomic analysis was performed to find similarities in individual family domains which would exist across the different families in the study.

Finally the data were evaluated through a componential analysis which compared all domains identified in the study with the cultural symbol of obesity. This material was reduced to contrast sets (Table 2) and these were evaluated for the presence of cultural themes. These are recurring patterns which indicate a postulate which is either declared or inferred and usually controls behavior or stimulates activity which is tolerated or openly promoted in a society.

Analysis was based on inferences of observances. No statistical analyses were performed. Two independent observers reviewed the tape material and domain analysis worksheets to assess the "trustworthiness" (Guba, 1981) of the data (Appendix E).

CHAPTER IV

RESULTS

Although this study sought individual family meanings for obesity, it found recurrent themes among these families that indicated the existence of a family obesity system. These data, consistent with current research literature, indicate that obesity is the result of the systemic interaction of multiple disparate factors (biological, emotional, environmental, cognitive, interpersonal); and, the obesity is often sustained by variables which are unrelated to those which are involved in etiology. In fact, the data revealed three distinct developmental stages for adolescent obesity: predisposition, initiation, and maintenance. Predisposition includes all factors that increase the probability of a particular person developing adolescent obesity. The initiation stage consists of all factors that initially precipitate the weight gain. Once the weight is observed as being excessive, based upon the subjective standards of the individual and her family, the maintenance stage begins. In this stage, all factors which serve to maintain the obesity are grouped.

These stages are additive. Predisposing factors, such as a biological propensity for obesity, would still be a factor in maintenance. And variables that serve to initiate the development of obesity, such as a sudden environmental change, could also still be present and contributing to the maintenance of the disorder. But factors from a preceding stage are usually only contributory and not sufficient for the development of each subsequent stage.

The adolescent's family, which for this study is defined as the

three-generational unit of the adolescent, her siblings, parents, their siblings and their parents, is unique in that it is an important contributor in all three stages. The family's contribution is both linear as in its biological (hereditary) and environmental (socio-economic) effects and systemic in its interactional contributions. In fact since even the "linear" family contributions interact with the "systemic" contributions, it is best to consider them both as subsystems in a family system that is defined somewhat more globally than is usually described in the family therapy literature.

Instead of placing all of the attributes of the family into the system, a loose confederation of different concepts, this study has divided them into more distinct subsystems. It is hoped that this will allow a more specific evaluation of the contributions made by specific and distinct aspects of the family. It also allows a more precise way of delineating the complex systemic process. The four family subsystems seen as important in this study of adolescent obesity are the biological, emotional, cognitive, and environmental.

The biological system includes the heredity aspects of the family that contribute to the symptoms' development. Minuchin's (1978) psychosomatic family, without its biological imperative for diabetes, would never, for instance, have developed a brittle diabetic child as the family symptom bearer. It may seem overly obvious to specify this biological system of the family. In many instances, however, only when one has isolated the biological subsystem can one determine the actual contribution of the other subsystems.

In a like manner the family environment subsystem provides its own

specific contribution. Environment is defined as all aspects of the family's physical environment. This includes the aspects dictated by socio-economic and socio-cultural status and other aspects of day-to-day living which may seem as mundane as simple food selection and the level of the family's physical activities.

The cognitive system includes all of the family beliefs about the symptom or the symptom bearer that can contribute to the symptom either directly or indirectly. This would include family myths (Ferreira, 1963), private logic (Adler, 1972), and distorted thinking (Ellis, 1975); in effect, any cognitive belief that would affect the symptom. It is important to distinguish these family beliefs/cognitions from the emotions which they may arouse. The emotions that may result from these cognitions would be viewed as part of the family emotional subsystem.

The emotional subsystem includes those actions that, although they may have a cognitive base, are primarily emotional in nature. The behavioral events associated with enmeshment or conflict avoidance are examples of interactions that grow out of emotional needs. In the case of enmeshment, it is the emotional discomfort of various family members or the emotional comfort at the closeness of enmeshment that leads the family members closer and serves as a barrier which prevents change. In each of the three developmental stages of obesity, all four subsystems play a varying role, but it appears that the cognitive and emotional systems are the most influential.

PREDISPOSITION

In no stage is the family more clearly connected to adolescent obesity than in its contribution in providing a predisposition for the obesity. Numerous studies (Weil, 1984; Stunkard, 1986) have documented a strong relationship between parental and family obesity with child obesity. Furthermore, family social class has been shown to also correlate highly with the weight of children. Similar relationships were found in this study. Yet, this relationship is complex and one which resists a simplistic linear explanation. It should rather be seen as one in which a family's biological, cognitive, emotional, and environmental subsystems interrelate to produce a predictable degree of predisposition.

Of the four subsystems, the biological appears to predominate, yet it is strongly influenced by the others. Of the five families, only one (Brown) revealed no family biological history of obesity (Table 1).

Of the remaining four, two (Black and Green) had one moderately obese parent and a moderate three-generational history of obesity (Table 1). The final two (White and Gray) had major involvement with obesity across three generations. In the Gray family the mother and father were moderately obese and the father's mother was severely obese as an adult. Further, his sisters, with one exception, were morbidly obese being in excess of 300 pounds. In the White family the mother was moderately obese, and the father had been severely obese as a child. Their son was also morbidly obese. The father's sister had also been morbidly obese and had undergone a jejunal bypass surgery.

By focusing on these two families, the Whites and the Grays, we

are able to obtain a more clear picture of the deceptive interaction of predisposers in obesity in the family. For, although the White adolescent reflects her family history of obesity by being the most obese respondent in this study (93.7 percent), the Gray daughter is the least obese being only marginally so (11 percent).

The important differentiating factors appear to lie, not in the biologic subsystem of these families, but in their socio-economic/environmental subsystem and in the meaning (cognitive subsystem) attributed to the obesity. Of the two families the Gray family is clearly the lowest in socio-economic status originating from a sharecropping rural family that struggled economically. In this family food was the major social ritual, and the father reports that excessive eating was heartily indulged in and condoned by the family. Meals for this family were generally traditional "country", southern cooking consisting of fried foods, high carbohydrate foods, accompanied by heavy use of fats for both cooking and seasoning. There was no stigma within this family for being fat. So for the Gray family being fat could have been more the result of family environment and valuing of fat than of a family genetic factor. This possibility is reported by research findings which show there is a strong correlation with obesity and lower socio-economic families (Stunkard, 1979). The Gray father, however, through great effort, moved himself from the lower socio-economic background of his childhood into an upper middle class bracket. It was in this upper middle class family environment that the obese daughter developed. The father married, in an upwardly mobile manner, his wife who came from a middle class background that had a

totally different meaning for obesity. The mother's family had a history of extreme thinness, and the mother had always had a concern about the importance of being thin. She also voiced anxiety about the obesity in her husband's family, and her fear had made this a prophecy for the daughter. The mother said that "Some people (pointing to the daughter) are born to be fat." So for this daughter it may be that the fear of a biological predisposition and not the biological predisposition itself is the true predisposer for this daughter. The intense involvement of this mother in this daughter's weight loss, when she in fact was barely overweight, would appear to support this. The White family, on the other hand, appears to be struggling with a true biological predisposition which is exacerbated by current developmental and family issues.

So in addition to biological factors being a predisposition, expectation as a cognitive self-fulfilling prophecy could also be a major predisposer. Two other families in this study indicated that they too had expectations for their daughter to be fat. Ms. White's father stated that he had always expected that "She will be fat all along", and Ms. Green's mother indicated that she was not surprised because the daughter "probably gets the tendency from her father." Such expectations could influence the way the family responds to the daughter, her eating, and her weight. This would especially be true if the parent were overly involved with the daughter emotionally or overtly concerned about weight as an issue. And, in fact, this was the situation in all five families.

The use of food in dealing with emotional states emerged as

another predisposer to obesity which was prominent among these respondents. Bruch (1964) labeled obesity which grew from eating in response to tension or anxiety as reactive or developmental obesity. Any learned association between eating as a method to deal with emotional states would influence food intake and hence be a predisposer towards obesity. In this study, all of the respondents associated their excessive eating with frustration, depression, anxiety, or boredom:

You feel alone and depressed -- you eat and feel happy, so you eat (White).

The more nervous I am -- I eat more -- I get nervous real easy (Brown).

All of the time there is a lot of frustration and, as a result, I think she eats (Gray's mother).

I overeat when I'm bored (Black).

If I'm bored and not active, I eat (Green).

It is not clear from the study the etiology of the relationship of food with emotion for these women. But as has been previously stated the obesity is perceived as having followed the association between food and emotion and it, therefore, appears to be an important predisposer.

INITIATION

Initiation presupposes a discrete beginning. This study did not uncover such clear specificity of events leading to the onset of obesity. All of the families were only able to report the onset as being within a certain year or certain part of the year. This is understandable for a number of reasons. Most importantly, weight gain is a gradual process and could escape initial notice by those who see the person on a day-to-day basis. And, even when first noticed, it would possibly be seen as being only "baby fat" and, therefore, something that the child would grow out of. Finally, in a number of cases the actual onset of obesity occurred so long ago that the retrospective report could be both vague and inaccurate.

No evidence was presented to associate initiation of the obesity directly with a specific biological event. Among the five women age of onset ranged from six to twelve years and showed no pattern that could be related to a specific biological developmental phase. One respondent (Black) did begin her weight gain soon after menarche, but there were other issues compounding the possibility that this was related to biological puberty. What unfolded instead was evidence to support the contention that the environmental and emotional systems for the respondents and their families were the source of the most important initiating factors.

Four of the respondents had specific changes in their and their families' environments associated with the onset of their weight gain. Black, immediately prior to gaining weight, had moved to a new state with her family and greatly reduced her physical activity. She had

been on the school swim team in her old residence and had an active social life but now began spending all of her leisure time watching television. Brown had been very upset over her involvement in organized basketball and had just ceased all participation in such activities. She also began to spend increasing amounts of time at home and this was soon followed by an observed weight gain.

Two others (Green and Gray) reported that they had always been less active than their peers and spent a large amount of time watching television. The television was associated with eating large amounts of snack food also: "In the second grade I started sitting at home, watching T.V. and stuffing my face constantly" (Green). It is worth noting that Green and Gray, who consistently had less activity in their environment, also had an earlier onset of obesity than Black and Brown. This could possibly support the importance of the level of activity in the family environment as being a critical regulatory factor for the initiation of obesity.

White appears to be the only exception to the importance of activity being a major regulator of obesity. She was, during the interview process, the most active of the group of respondents. She actively played on a league baseball team and was actively involved in a number of church activities. Despite this, however, she was also the most obese of this group. Her previously discussed strong biological predisposition may be an overriding biological factor that would cancel out the other factors. She also reported a strong need to use food to deal with emotions and was a secretive binge eater. So this, too, may be a contributing factor. If pronounced biological vulnerability in

one's genetic make-up were such an important factor, then it would be important to consider early childhood preventative measures for such children as a way of offsetting this factor.

The importance of the family environmental system in the initiation of obesity can most clearly be seen in Green's history. The respondent's family reported that she was first noticed as being overweight at around six years of age. There was nothing done until the fourth grade when her mother placed the entire family on a rigid diet. She, in effect, removed high caloric snack foods from the home and would only prepare controlled dietary meals for her family. The daughter lost weight during this time and continued to maintain this weight for almost a year afterwards. During that year, the mother gradually reverted to her old cooking and food purchasing habits which included snacks for the men in the family because "they just have to have their evening snacks". The daughter began regaining weight during this time and continued to do so at the point of beginning the program of weight loss for adolescents that was associated with this study. In this program she began to reduce her snack food and became more physically active by joining a school track team. She was, at the conclusion of the study, again beginning to lose weight.

Green, like White, also had emotional issues interacting with the biological. During this period of weight loss the family, and she as an individual, had emotional issues that paralleled the activity and diet changes in the family. So although the significance of the emotional system to the initiation of obesity is not as clear as that of the environmental (biological) system, it seems to be important. As

has been reported, there is an emotional predisposition for these respondents to rely on food when they are stressed or lonely. There was also evidence that, along with the environmental events associated with the weight gain, there could also have been emotional factors involved.

White and Green linked their weight gain to the start of primary school which is reported as a time associated with stress for children and families (Skolnick, 1983). Black associated her weight gain to not only the move to a new location but also to the early onset of puberty.

Both of these events could be seen as quite emotionally stressful. Brown associated her gain to a seemingly unimportant event, dropping off the basketball team, but this event was symbolic of a number of major stressors in her family. Finally, Gray's weight gain occurred at a time of stress for the family which had led to family therapy sessions.

It may be that major family emotional and environmental changes both activate a chain of events which include increased eating, decreased activity, and increased social isolation which as a system so rearranged the caloric balance that weight gain occurred. Emotional stress and environmental changes for the family could be seen as an interactional process which, given biological, environmental, and emotional predisposers, allow the initial onset of obesity to occur.

MAINTENANCE

Once the family notices the child's weight gain, their response to it greatly increases the complexity of the family system's process around the obesity. The biological, emotional and environmental factors which were involved in the inchoation of obesity continue to be an influence. It is one, however, now affected by and affecting the family's own involvement. This is similar to the effect that the observer and the observed have on each other (deShazer, 1985).

The family's response is mediated by its cognitive belief system concerning obesity, its emotional system, and the role of the child in the family's interactional process. These factors determine the overt and covert ways the family attempts to deal with this perceived problem. Often their solutions perpetuate rather than dissipate the problem.

Cognitive Belief System

The family's cognitive belief system is developed from both the meaning of obesity inherited by the family from their culture and the meaning that has developed from the family's own experience. Gray's mother voiced the common concern of all of the mothers in this study: "I want her to lose weight enough so she looks nice in her clothes and doesn't get all of this teasing." This is a fear that reflects our own cultural stigma of the obese (Allon, 1980).

Cultural Cognitions

Four of the respondents had repeatedly experienced negative comments about their weight, and these comments were more intense proportional to the individual's degree of obesity. White, the most

obese, had experienced the worst, being repeatedly called "fat" and "heavy" by her peers. Green was regularly called "Fatso" by her brother, and Brown had been called "Biggin" repeatedly by all of her siblings. Gray and Brown would regularly receive comments within the family such as "Do you think you ought to eat that" and "Gosh, another piece", which were taken by them as their being called fat. In fact, the concern of others about their weight was to them a reminder of their own defective condition. So the families' recognition of weight as a problem would serve to promulgate it; because all but Black admitted that they would regularly eat when others would focus on their weight.

The families seemed in fact to have stereotyped most of the respondents as being defective. In some cases it was seen as an imperative:

She will be fat all along (White).
 She probably gets the tendency from her daddy (Green).
 Some people are born to be fat (Gray).

Or they found in the child the stereotypic characteristics of "fat people". Brown's mother, when confronted with the incongruity of an I.Q. of 128 and poor school performance, said, "The I.Q. is not as important as initiative, but it seems that she is lacking in that".

Family Cognitions

Although these families' cognitive beliefs are strongly shaped by cultural beliefs which stigmatize obesity, there is a factor which differentiates them also. This could be conceptualized as a deviation/amplification process. In these families a strongly negative personal experience of a parent or relative with being obese or the

intense fear of obesity on the part of a parent or grandparent intensified the anxiety of these families. Also, the mothers in these families seem to be emotionally overinvolved with the daughters and overprotective. This tended to amplify their concern about their daughter's becoming overweight and suffering cultural stigmatization.

The White Family is an example of the effect of a personal experience on a family's response to obesity. In this case, the father was extremely involved in the daughter's weight. He would yell at the daughter at meals about her eating, constantly call and check up on her and her weight, and bribe her to lose weight. His sister was also actively involved in trying to help the daughter. This intensity of involvement stemmed from both the father and his sister having been morbidly obese as adolescents and both having suffered severe stigmatization as a consequence. The father, who lost his weight as an adult, spoke of being "weight phobic". His sister, who lost her weight following a gastric bypass operation, was reported as being equally intensely focused on weight. Ironically, their attempt to "save" White from their fate was clearly contributing to her weight gain. Here, her biological reality which is to be at least moderately overweight was being amplified by the fear of her father that she would be very overweight. She clearly outlined this process in stating that when her father discussed weight with her the result was her going to her room and secretly binge eating.

Fear of fat does not necessarily have to be related to a personal experience. This has been reported in the eating disorder literature with regard to anorectic and bulimic patients (Garfinkel and Garner,

1985). It is an association of being fat and out of control even if one is still within a normal weight range. For the person experiencing this, the feeling has the intensity of White's father's "weight phobia" without its biological reality. In this study such an anxiety about fat appeared in three of the respondents' grandmothers (Brown, Gray, Green). This suggests a multigenerational transmission process (Hall, 1983) that is related to the perpetuation of these young women's obesity.

There were, in fact, striking similarities among these three families:

1. The grandmothers were abnormally concerned about their weight.
2. The grandmother and her daughter (respondent's mother) had a very enmeshed relationship.
3. The adolescent's mother also had a very enmeshed relationship with her obese daughter.
4. The daughter was either the only daughter or youngest child.
5. The mother was a homemaker.

Brown's grandmother weighed 90 pounds and had never weighed over 107, according to the granddaughter. The mother indicated that overweight people bothered the grandmother and stated that the grandmother had constantly "told me how fat I was getting ... I was so sensitive about that". Gray's grandmother was even smaller, weighing 85-90 pounds and the mother recounted that her mother was very worried about the granddaughter's weight. Green's grandmother was the family member who initiated the granddaughter's involvement in the weight loss program by calling the mother and encouraging her to bring her daughter.

This concern reflects a closer than normal relationship between the grandmothers and the mothers. In two cases, the grandmother lived within a block of the nuclear family and in all three cases there had

been an intense emotional relationship between grandmother and mother. Brown's mother stated that it was hard for her mother to let her go — "she was very possessive", and Brown's mother stated that she slept with her mother until well into her high school years. Green's mother maintained daily contact with her own mother, and Gray's mother reported that she was clearly the closest one to her own mother.

In this area it is difficult to delineate the cognitive belief aspect — fat is bad — from the emotional aspect of the weight being the metaphor of a more widespread overinvolvement. These grandmothers appeared to be very enmeshed with their daughters and their daughters weren't obese. It is hypothesized that a sensitivity about weight, however, was transmitted to these daughters which may in turn have given them a predisposition to focus intensely on it. This does not answer the question, however, of why the child who is the most involved with the mother was also the obese child, which was the case in this study.

EMOTIONAL SYSTEM: MOTHER/DAUGHTER ENMESHMENT

Intense enmeshment suggesting the Bowenian concept of mother-child symbiosis (Bowen, 1978) was evident in four of the five cases, and in the fifth case a variant of this was also evident. These mothers were intensely involved in their daughters' lives and often spoke and acted during the interviews as if they were one person.

At first we tried Weight Watchers (Black's mother).
 We had to do something, we got so depressed (Green's mother).
 I told her, we are going to have to work on it, you and me (Gray's mother).

All of these mothers, none of whom were obese, had dieted with their daughters at one time and were actually involved in the entire dieting

and weight loss process. Green's mother was typical. The daughter reported that her mother helped her with her weight at least two times a day, everyday. As the daughter described one of these examples, "She cut pieces of bread into one-half inch squares, and she really put on really thin peanut butter." Initially the daughter refused the mother's request that she go to the weight loss program. The mother's response was typical of these mothers. "She wouldn't go, so I got someone to go with her." The mother also went, driving the daughter and her friend forty miles in each direction weekly. The mother also sat in on the dieting group until she was asked to leave by the therapist. As the daughter said, "Mother would do everything for me."

These are, in fact, very supportive and protective mothers who assume that they have to do everything:

I have to do most of what is done. I have to be the one who is dedicated. How can you not be overinvolved? (Gray's mother)

The teacher said I was the first parent who wanted to hold back a child. (The mother, in fact did hold her child back a year even though the daughter had a C average.) (Black's mother)

When I kept her food log for two weeks ... (Brown's mother)

I think she ate three pieces of pizza -- I did get her a Tab -- she didn't resist. (Brown's mother)

All along she is the one with various problems. (Brown's mother)

This overinvolvement and overprotectiveness is similar to those characteristics reported by Minuchin as part of the dynamics found in psychosomatic families (Minuchin, 1978).

In these four cases, there was a special relationship between mother and daughter. This appears to have been intensified by the daughters' spending most of their time at home with the mother. Then,

either the mother is more emotionally attached to the daughter (I had more time with her than the others. I'm more friendly with her anyway - Black's mother), or more worried about the daughter (how can you not be overinvolved? Gray's mother). Yet given the mother's sensitivity about weight and her view that the daughter does have special problems, one could predict two things. First, that when the daughters heard their mothers speaking about how the mothers would and had to do everything for the daughters, the daughters would also have heard the unspoken statement that the daughter is incompetent and incapable. Secondly, it could be expected that the mother would give incongruent messages to her daughter since the mother was both pushing the daughter to change her weight while at the same time believing that the daughter was incapable of change. The daughters reported that they received both of these underlying messages.

Brown's mother offers a good example of this. On the one hand, she presumes that her daughter is basically flawed (she is the one with various problems). When the mother is presented with evidence of the daughter's competence, she discounts it. When the mother, who felt that the daughter had a learning disability, was told that the daughter's I.Q. was in the high normal range she believed and stated that I.Q. is not as important as initiative but "it seems she is lacking in that". This carries over to the weight. The mother defends her daughter as being the victim of fate through a cognitive process of protective distortion. She repeatedly stresses that the daughter is not responsible for her weight gain:

I never saw her overeat.

I never did think that she overdid it. I eat a lot more than she does.

The child could look at food and it puts weight on her.

She never ate over 1700 calories.

She eats what the boys do but is not metabolizing it.

Yet the daughter readily admitted that all that her mother said is not true and that she ate more than her mother knows. And, the mother in commenting that "I think she ate three pieces of pizza" indicated that she was also at least covertly aware of this. So the confusing message to the daughter seems to be that the daughter is the victim because she lacks initiative.

In communicating support to her daughter, Brown's mother also projected the underlying message that the daughter is defective:

I tried to build her up -- she is a very neat girl. She really looks perfectly beautiful. Her hair is perfect. I tried to make her realize that she is a little overweight.

Such positive statements are consistently interpreted by the obese as being negative statements which point directly to their fat (Millman, 1980). The mother at another time more clearly exposes her underlying belief when she says, "The boys call her 'Biggin'. She is a big girl".

The other mothers also support their daughters by excusing their behavior as being inherent and so not their fault:

People (speaking of her daughter) are basically the way they are. If people are dependent, they will always be (Green's mother).

She loves to eat -- a tremendous appetite (father and mother laughed approvingly at this).

A real meat and potatoes man.

She was a big baby (Gray's mother).

Yet the daughters report a different set of motivations to explain their behavior:

Mother and Dad are closest to me. I am the last one. Make it good. This is the last time (Green).

I eat to keep up with my father and brother (Gray).

So the mothers are pushing for the very change they define as not feasible while explaining the daughter's behavior in ways that show no understanding of that behavior. When a mother is saying that her daughter is not changing because of an inherent characteristic, and the daughter is doing the nonchanging behavior because she is trying to take care of or be accepted by her parents, confusion becomes the order of the day. And in this confusion the daughters are frustrated and depressed and eat more.

The daughters all report that they do feel intense pressure to lose weight and guilt when they don't. There is no way to deal with this directly, however, because the mothers are often not direct. For instance, Green's mother says, "I don't know her weight progress because I don't weigh her. I don't want her to be weight conscious." But, in reality, the mother prepares special little bread snacks and when she and her daughter go out, she reports that she says to her daughter, "Be sure to get a salad. Don't miss your salad." Although she says this, she also admits that she knows that the daughter does not like salads.

Green's mother, again representative of the other mothers, also gave double messages to the interviewer. When asked about how much weight she would like her daughter to lose, she said, "I don't expect

much. Just maintain (her weight) and grow." But, when she was further questioned, she admitted that she really wished for her daughter to lose at least twenty pounds.

Overinvolvement and conflicting parental messages are not exclusive to mothers. White's father played a similar role in his family. Intensity of involvement and not the sex of the parent is the key factor. In this case, it was the father's own obesity which provided that intensity. Here too the concerned parent gave, on the one hand, a message of inevitability, (She will be fat all along), while at the same time almost violently demanding that she lose weight. He also gave a confusing couple message about her weight which is also similar to the ones reported by the mothers. He spoke intensely about his weight phobia and great upset and anger at her being overweight, but, on the other hand, said quite proudly, "She's strong as a bull. We wrestle, and her weight is her strength." The power of these messages in perpetuating the obesity can also be seen in this case. When faced with her father's attacks and his confusing messages, the daughter invariably reported that she would go to her room and secretly binge eat.

INTERACTIONAL SYSTEM

Although in every family in this study there was one dyadic relationship between parent and child that was noticeably more intense and enmeshed than any other relationship, this relationship cannot be treated as operating in a vacuum outside of the family system. Just as three of the mothers' own lack of differentiation and concern about weight was seen as being influenced by the multigenerational

transmission process, so too can aspects of the nuclear family be seen as important. In this study, important subsystems whose interaction influenced weight included sibling interactions, parental dyadic interactions, and the triangular interactions of parent and child.

Sibling Interaction

The most striking aspects of the sibling interactions observed were the similarities of sibling positions among the obese adolescents and the sense of being isolated from their other siblings. Gray, Green, and Black were all the youngest children in the family. Green, White, and Brown were the only girls in a family with brothers. This may be merely coincidence or these sibling positions may have placed these daughters in a position vis-a-vis the involved parent that would make them the recipient of more attention. As Black's mother said, "I had more time with her."

Among some of the siblings, there was a competitiveness with the respondent in which the respondent was invariably the loser. Brown represented the most extreme example. She voiced great shame about her obesity in terms of her siblings and refused to even let them know she was coming to the weight loss program. This was reflective of her sense of being defeated by her higher achieving siblings. Each of her three brothers was clearly superior in some area, and the youngest brother was the mother's favorite. The brothers were all athletic, and the father coached all of their athletic teams. He had never coached one of hers even though she had tried sports but was not successful in it. In fact, when she quit sports altogether, her weight gain began. The mother also sided with the boys even when the boys repeatedly used

the respondent as their scapegoat. When asked how she felt the brothers would respond if the respondent lost weight, the mother said:

The boys might not notice her weight loss. They would find something else to pick on. When they do (pick on her), she is angry and loud and says things to them in a way that I can see why they pick at her (Brown).

Sibling/Parent Interaction

Brown was, in fact, repeatedly involved in a triangular interaction with her mother and the brothers. In this interaction, the son would bring up the weight issue, and then one of two behaviors would occur. If the daughter gave in and left the scene, the mother would stay out. If the daughter would fight back, then the mother would support the son. Following this, mother and daughter would have a long, protracted argument.

The daughter, in this case, has been stigmatized by her family and felt soundly routed by her siblings. Alfred Adler (1956) would see her as a discouraged child. There was no question that she saw herself in this way. She said, "I go to my room. No one supports me", and then she eats.

The Gray adolescent was in a similar position in her family in that her older brother was quite successful. He was a student who did quite well and was popular. He also monopolized the father's time with both sharing a lot of vigorous outdoor activities. The respondent, despite trying to be a "meat and potatoes man", was ignored and was often reminded by the brother of his superiority. He would meet her failures at dieting with comments such as, "If I went on a diet, I could do it". She stated that this made her mad, but when pressed further admitted that she was hurt because she also felt that he could.

As with the Browns the mother stayed out of this interaction between daughter and brother, leaving the impression of a coalition between herself and brother. This was repeatedly acted out at mealtime in this manner:

Brother: (Sarcastically) Why don't you have catsup?

Daughter: I will if I want to, but it's none of your business.

Brother: Don't eat all of the catsup. Don't you know how fattening it is? Don't eat all of the bread, etc....

The mother stated that when this occurred she sometimes would tell him not to do that, but it was clear that this was both rare and done ineffectually. So siblings, even when they are being "helpful" can convey the message of "I'm superior" — a message which tends to lead to capitulation, frustration, and more food for these obese daughters.

Child/Parent Interaction

White and Green were less influenced by sibling competitiveness and seemed, along with Brown, to be more affected by parental dynamics.

In fact, of the four intact marriages all appeared to be at least devitalized (Cuber and Haroff, 1965) with two (Brown and Green) exhibiting strong hostility on the mother's part toward the father.

He's so wrapped up in all of his work, and he's hung up in sports — he coaches two teams! (Brown's mother).

He goes to work every Sunday (Brown's mother).

He isn't home that much -- gets home at 10:00 P.M. (Brown's mother).

He has sort of left the children to me! (very angry tone) He has never helped. Not his thing. Not interested. Really busy (Green's mother).

Neither of these couples shared any activity, and during our interviews neither showed any behavioral signs of affection. This was also the case in the Gray couple. Although neither of the Gray parents overtly

expressed anger about their partner, they would constantly disagree about the daughter. The father was also gone much of time and what leisure time he had, including vacations, he spent alone with his son on trips.

The Black couple seemed to have a passive congenial relationship (Cuber and Haroff, 1965). They were polite and presented no signs of conflict but also had no direct involvement except their involvement around the children. The foyer of their house had five oil paintings of their five daughters, and these daughters seemed to be their marital cement. It also seems that parenting had been the main activity for the mother during the past two decades. During the interview process this was made more evident. The daughter was scheduled to spend a month in England as a student exchange participant. The parents' response was quite strong and their way of dealing with it was to plan to go over to England with her, a move, fortunately, that the respondent blocked. The mother's comment in discussing this was "(We) may find we will have nothing to talk about." It is an interesting note that the daughter lost weight while in England.

In the White family, the parents were divorced, but their marital interaction was still a major part of the family dynamics. Just as the Black daughter was her parents' cement, so too was the White daughter or, more correctly, her obesity. The father's involvement in "helping" his daughter seemed the main reason given for an intense continued interaction between the divorced couple. He, for instance, was said to drop by regularly unannounced, which the mother did not like. In fact, he dropped by the day of the interview with the mother for the study.

He then spent most of the time during the interview overtly attacking her. For instance, he said about the mother at the onset of the interview, "She built herself. Wasn't this big. Look at her now." Or he would attack what she does:

Mother: At dinner sometimes we have the T.V. on.
 Father: To me, that makes me eat more.

This occurred repeatedly throughout the interview.

This unresolved marital conflict was played out in a rigid, triangular interaction that left the daughter the scapegoat. In this interaction, the mother saw the daughter as being like her father. ("She always wants to go and do something. Her father is the same way.") The mother was overtly conflictual with the daughter, while she could only be covertly conflictual with the husband. The husband was overtly supportive of his daughter against the mother, but he, too, was conflictual with her. When he did initiate conflict with the daughter, the mother would then become more involved in support of the daughter.

This triangular interaction presented a tableau of this family and the still unresolved issues between mother and father. This process was repeatedly acted out over meals. In one variation, the father would attack the daughter to be able to complain about his exclusion from the family:

Daughter: (Takes a very large helping.)
 Father: You don't need to eat all of this.
 Daughter: (Crying) Oh, I'm hungry, I didn't eat breakfast.
 Father: I don't have the right to do this, since I don't live here!
 Mother: (Does not interfere.)

The other variation has the mother attacking the daughter as a way to eventually form a coalition with her against the father:

Daughter: (Takes extra hamburger)
Mother: Good day, that's too much.
Daughter: I'm hungry.
Mother: I'll take off one hamburger.
Daughter: (Becomes angry and goes to room.)
Father: (Very angry) Don't eat!
Mother: (Goes to daughter's room) Eat what's on your plate or your father's going to make you do without.
Daughter: (Comes out and eats.)

When it is only mother and daughter at home, the meal conflict follows a similar cycle where the daughter again initiates by putting a large amount of food on her plate, which the mother tries to reduce. This results in the daughter's anger and eventual secretive eating. There are several possible interpretations for the daughter's role in this marital drama. One could see this as the daughter's protection of the parents, by seeing the daughter initiating the dysfunction to be the focus of mother and father, and thus bringing them together. Another way of viewing this would be to see the daughter as feeling responsible for their conflict and a failure at being a good daughter. This would result in a sense of being incompetent and defective and would follow the same pattern as adult children of alcoholics are seen to follow. In either case she must fail in her weight loss to succeed.

But to fail, she must accept the role of being defective and ashamed of herself, which further isolates her and then leads to further eating.

The other daughters also become triangulated into their parents' dysfunctional relationships. Interestingly, their weight is also the *modus operandi*. In the Brown family, for instance, the daughter is often put in the position of couple mediator. For example:

Mother: We painted the house three times.
 Father: Two times.
 Mother: Which is it, Daughter?

She is also the reason her father makes his rare appearance in coming in and supporting the mother.

Mother says something about weight at dinner. Daughter reacts angrily. Father mediates and supports mother.

At times the entire family is involved in this.

Brother calls her Biggin. Daughter reacts angrily. Mother says "I'm helpless". Calls husband and tells him "I can't stand it." Father comes home and mediates.

The Green family also triangulated the daughter around weight; but, in this case, it was used to keep her in a close alliance with the mother. A typical example involved the mother's using the weight loss program to illustrate the father's lack of support:

She (daughter) won't go to him. She figures he can't help her. She talks to me. We tried to keep going to the program kind of a secret because if he had known he could have easily taken her out of it.

The Grays, like the Whites, use the daughter to act out their disagreement. The mother would make a statement and the father would discount it, and then the mother would repeat the statement ad infinitum. This is never resolved. For example:

Mother: She is immature.
 Father: But mature in other ways.
 Mother: (Gives examples of her immaturity.)

Another example of this is:

Mother: Some people are born to be this way.
 Father: You can control it.
 Mother: Some people are not as well disciplined.

The detouring of conflict through a child was reported by Minuchin (1978) in his Psychosomatic Model. Triangulation of a child with their parents has been described by Haley (1981) as a perverse triangle which often leads a child to becoming the family symptom bearer. This study found that in at least four of these families not only is a child involved in this way; but, also, their weight is used as a vehicle for this involvement.

SECRETIVE EATING

One way these young women have dealt with the family pressures and conflicts around eating and their need to deal with stress by eating is through secretive eating. Eating in secret is widely associated with bulimia (Hawkins, 1985) and can be seen as compounding the process of obesity in a number of ways. It gives the parents a false idea of the person as someone who "can look at food and it puts weight on her". It also counteracts and defeats diet attempts. This leads the family to misread the poor results of their solutions to the weight problem. They then attempt to correct for this without the knowledge of the secretive eating. This tends to continue to perpetuate the problem. Finally, secretive eating further reinforces to these young women that they are bad and out of control.

Three of the adolescents spoke quite readily about their secretive eating. They were White, Brown and Green. Of these, only one set of parents were aware of the behavior. The White parents mentioned finding candy wrappers in her room and stated that "Lots of times she gets something to eat and goes to her room" (White's mother). As the father said, "Remember you found food gone, and she denied it." (She

denied this to them.) But in the interview, she readily admitted that she binge ate food and would sneak it into her room on a regular basis.

Brown's mother, when she was challenged about her daughter's weight gain, said that that could not be true "unless she is sneaking food. I don't know that she is." The daughter, however, was almost gleeful when she told the interviewer that "I sneak food!" She added that she eats much more when no one is at home. Green stated that she also secretly ate but did it mainly at friend's houses. Such secretive eating, which helps perpetuate eating disorders, is another example of how the family's emotional atmosphere affects eating.

DYSFUNCTIONAL SOLUTIONS

Despite hypothesized gains to the family from the daughter's obesity, all of these families were, it must be remembered, actively attempting to help the daughter lose weight. This is evidenced by their participation in the weight loss program. Yet, their failure would indicate that some of their solutions to weight loss were potentially contributing to the problem. If so, these solutions would be an important contributing factor to the promulgation of the obesity.

This was the case in this study. Parental solutions, individual respondent's cognitive rationalizations, and biological rebound from inappropriate dieting all contributed to the continuation of the weight gain.

Parental attempts at control were ineffective and seemed to actually cause weight gain through the adolescent's reactive eating. White's father would get mad, lose his temper and try to force his daughter to lose weight, according to her account. As a result, she

reported that she ate more. Black's father would constantly try verbally to encourage her to lose weight saying, for example, "You have to watch your weight". The results of this, she reported, were that "I ate more."

Even when the parents weren't involved, the adolescent's solutions also helped perpetuate the problem. White's dieting was totally on her own and not involved with the parents. Her cognitive rationalizations led to inappropriate dieting, which in turn led to biological side effects that contributed to her continued secretive binge eating. She, as do many chronic dieters, rejected appropriate weight loss:

I can't lose like that (two pounds a week). When losing like that I'm practically not doing anything. I have to take a big step — seven pounds the first week, four pounds the next week. Mom's diet works that way but requires that you can't let yourself snack no matter what.

Then to accomplish this she also routinely skipped lunch. All of the other adolescents in the program also skipped lunch as a way of trying to get large weight losses on their diets. Such all or nothing thinking is a cognitive trait of chronically unsuccessful dieters (Bennett, 1983). Also, such rigid and extreme diets, especially one involving the skipping of meals, have been shown to biologically precipitate binge eating episodes (Polivy, 1984).

Green provided an example of how this chronic use of dieting can create a binge eating pattern. Her mother had her dieting in the fourth grade and reinforced dieting in moral terms. The daughter stated, "If I don't lose, Mom will get mad. When I'm caught with a snack Mom gives me a disapproving look." Her mother's solution is a rigid diet with no snacks. The mother, in fact, does not allow sweet

snacks in the home. The daughter, in attempting to comply with this regimen, has been on a dieting roller coaster for years:

I have diets constantly. I go for a day (sic), get messed up, forget it for a week. Then Mother thinks it's getting out of hand and says it's time to go on a diet.

As a result, the daughter's attempts at eating "good" food increases her urge for "bad" foods, which to her are really the good ones:

I'll have an apple but don't want it. I want something "good". Then I'll make a sandwich -- that's not enough. I'll go back repeatedly -- craving something sweet. I'll make it up with something that doesn't taste so good, so I end up eating more.

And she also breaks normal eating patterns:

I never have time for breakfast. If I don't like what school has (which is often) I eat ice cream.

The result of this confused eating pattern is that the daughter has become a very picky eater who, the mother says, "does not like much so eats little."

What has actually happened is that this daughter has learned to become bulimic. Her eating has become disassociated from the normal hunger satiation stimulus (Polivy, 1983). She now eats until stopped by physical discomfort:

I lost count of when I'm hungry and when I'm just eating. I don't know when I was really hungry. I can go for a long time (14 hours) and not feel hungry, but once I start eating I think I want more even though I could be full. I could eat until I'm sick, but if it looks good, I'll eat it anyway -- for the taste of it. Now it has become a habit to eat everything ... It's easier not to eat. Once I start it's hard to stop.

Such a binge eating pattern is self-reinforcing and would perpetuate itself even if contributing family dynamics issues were dealt with (Hawkins and Clements, 1984). The result of this behavior will lead,

of course, to continued weight gain which will continue to affect the family dynamics. So biologic, cognitive, and interpersonal processes become fused into an alloy which has great resilience against change.

In the White's family an attempt to resist biological obesity has served to increase it. In the Green's there is a case of minimal biological obesity being propelled into an eating disorder. In the Gray family we have the diametric opposite of the White family. Here a daughter with no proclivity for obesity is being labeled as obese even though she is unable to achieve that weight status. So the non-problem once having been labeled as a problem, is a subject of compulsively growing number of solutions by the mother. Eventually, if the mother's solutions continue to be applied, there will be slow but gradual weight gain, but the mother's solution for this problem affects the daughter in other areas beyond weight including her sense of low self-esteem and low competence.

The mother's solution is so pervasive because it is negatively reinforced. The mother feels that the efforts she is making to help her daughter are working and attributes the minimal weight gain to them. She feels that should she relax her vigilance the flood gates of fat would open and overwhelm her daughter:

I remind her everyday about her weight. I think she would get fatter and fatter if we didn't say anything. She will become concerned if I'm concerned. If we were not concerned, she would be really heavy.

Yet the mother also recounts how well her concern actually helps:

We talk to her. Then she eats. I say, "You can't lose weight that way.

The daughter admits that this cycle exists but her response as to its

etiology is far different from the mother's:

We would cut down for two weeks. If I don't cut down we go longer, but it doesn't work anyway because she lets me eat.

This cycle may be seen as a functional process in maintaining the family dynamics, but in terms of the weight it perpetuates it and does not help reduce it.

FACES II

Faces II (Olson, 1982) was administered to all of the mothers and daughters of the study. The findings from these tests (Table 3) seemed to be consistent on the cohesion dimension with the data found in the other parts of the study. It was, however, inconsistent with the data from the other aspects of this study with regard to the adaptability dimension. Family cohesion assesses the degree to which members of the family are separated from or connected with their family, and cohesion has been defined as the emotional bonding which family members have with each other (Olson, 1985). Family adaptability assesses the degree to which the family system is flexible and able to change. It is defined as the ability of an interpersonal system to change its power structure, role relationships, and relationship rules in response to situational and developmental stress (Olson, 1985).

Along the four category continuum of family cohesion (disengaged, separated, connected, enmeshed), the mothers and daughters were distributed across all four categories with enmeshment being the least represented category (Table 3). This is inconsistent with the data from the structured interview and the researcher's observations. It is also inconsistent with Minuchin's psychosomatic family's model (1978).

These saw the family being more in the direction of connected and enmeshed. It may be that, since the interviewer had a personal relationship rather than an anonymous relationship with the family, the family's responses were influenced.

The responses in the adaptability scale were more congruent with the other data from this study as well as with Minuchin's psychosomatic model. They reflected a clustering of the families in the structural to rigid side of the adaptability scale. To what degree this reflects a desire to communicate to the researcher or is a realistic portrayal of these families is unknown. Also, the families which are represented in the rigid area are the same families with the most significant mother/daughter conflict. It may be that this level of conflict has sensitized mother and daughter in their views as to the rigidity in the families.

Although mother and daughter were close to each other in their scorings, no mother/daughter combination was rated in the same area on the scale. This is consistent with Olson's data which reported a low correlation amongst family members on Faces II (Olson, 1985). Although Faces II data does appear to support a tendency for these families to be less adaptable than the norm, it is difficult to determine the degree of credibility in this data. The small respondent number and their personal relationship with the test administrator could easily have compounded the results. The clustering of respondents on the adaptability scale, however, would indicate that a Faces Scale might be useful in a more methodologically sound qualitative manner in a future study which evaluated a large number of subject and control families.

OBESOGENIC FAMILY SYSTEM

This study supports the existence of a family obesity system which impacts all families with obese adolescents. There seems, however, to exist in some families an aggregate of factors which metamorphose the obesity into the symptom of a dysfunctional family process.

It is hypothesized that these families constitute an "obesogenic" family system which exhibits a pattern of common characteristics. These characteristics include:

1. A biologic potentiation for obesity.
2. A poorly differentiated parent who is overly enmeshed with the obese child.
3. A multigenerational transmission process which focuses on food and body size.
4. A parental dyad divided by unresolved conflict or dissatisfaction.
5. A tendency to focus on the obese child as a method for avoiding dealing with the marital stress.
6. A pattern of confusing verbal and non-verbal communications concerning food.
7. A family belief that being fat is inherently shameful.
8. A recurrent use of solutions that maintain rather than reduce the problem.

The more of these characteristics that are present in a family and the more intense their presentation, the greater is the likelihood that the child's obesity will be the outgrowth of this "obesogenic family system". Such a system is different from the Minuchin psychosomatic model in that it requires a specific biological involvement, three generational involvement, dysfunctional double binding communications around the symptom, and a specific family meaning for the symptom.

Finally, the obesogenic family system differs from Minuchin's psychosomatic family system in that the obesogenic family is not assumed to exist in all families with the "psychosomatic" symptom of obesity. Only a subgroup of obese adolescents can have their obesity directly linked to obesogenesis.

CHAPTER V

DISCUSSION

This study encountered a plethora of factors which influenced the development of these adolescents' obesity. These factors originated from distinctly different areas including biological, emotional, cognitive, environmental, and interpersonal. But they became so interconnected in the development of the obesity that they actually seemed insculated into a single causally complex strand. Some of these factors, including certain biological and environmental aspects, are constants. Others, such as cognitive, emotional, and interpersonal issues, grow out of the idiosyncratic meaning that each family attributes to obesity and consequently these factors are more variable.

Further, these family meanings can influence as well as be influenced by the more invariable factors. For example, a child with a genetic and environmental predisposition to be obese could become even more obese than is biologically inherent. If the family attempts to protect the child from obesity through weight inducing "diets" or if their behavior leads to reactive eating in a stressed child, then the predisposition will be compounded.

Two other orchestrating factors also appeared in the study. One was the way in which the innate emotional dynamics of the family utilized obesity in its own musical score. This, in turn, directly interacts with the more overt family involvement with obesity. For instance, parental conflict can be detoured into the conflict over the child's obesity. This increased tension can, in turn, result in increased eating by the child and consequently increased weight.

Secondly, just as cultural beliefs interfuse with the family

system to affect family dynamics, so too do both cultural and family beliefs imbrue the adolescent and color her own sense of self. Cultural and familial stigmatization of these adolescents appeared to affect their own view of self. They exhibited many of the characteristics associated with the affect of shame (Kaufman, 1978). Among these were the feelings of being inherently defective and of being powerless and inferior. Such a sense of self can, in turn, influence the way these adolescents interact socially and respond within the family system. These factors, of course, can affect their inability to lose weight and, therefore, help perpetuate the circular process.

The multifarious nature of obesity observed in this study has implications for treatment and for research. It would suggest that both treatment and research need to be multidisciplinary in approach. Only by having the resources for dealing with all of the important issues of family dynamics, biology, and individual processes can one be confident that the variables vital to an understanding of obesity or to successful treatment will be dealt with.

In the families in this study each had a different accentuation to their obesity system. The Whites' was heavily influenced by biological factors. The Blacks' showed more stress on environmental and enmeshment issues between mother and daughter. For the Browns, there was a strong multigenerational transmission process associated with poor differentiation, and this was reflected in the daughter's strong sense of worthlessness. The Greens, although they also exhibited a strong multigenerational transmission process, had the factor of a

powerful bulimic binge eating pattern that was operating to maintain the obesity. And the Grays were most affected by the enmeshed mother/daughter relationship and by the results of chronic, long term dieting.

So, all of these factors interact with each other but in each family some interact more powerfully than others. Consequently, this study also indicates a need in both research and clinical treatment for a comprehensive assessment. To date, there is no formal assessment protocol that evaluates all of the areas covered in this study. Development of such an instrument and its use to assure uniform assessment is an important need for further study. It is possible that the assessment procedures used in this study could be converted into a standardized assessment instrument for this purpose.

First, however, empirical research is needed to evaluate the findings of this study, so as to determine to what degree these results may be generalizable. There was no intention that these results be taken as representative of any general population. Yet, the consistency of the findings suggest that some characteristics seen in these families, labeled for this study "obesogenic family system", might be reflective of a larger population. Since verification of such a system would have important ramifications for the study and treatment of adolescent obesity a study should quantify the characteristics presented as constituting the "obesogenic family system" and then test its validity.

It must be pointed out that even given the potential of these findings for being generalizable beyond the five families involved,

there is no evidence that these families represent the majority of obese adolescents. Rather, it must be assumed that this study has an inherent selection bias towards obese adolescents who come from an enmeshed, overinvolved parental system. All of these respondents were strongly influenced by their parents into participation in this program. Obese adolescents without parental pressure were not a part of the sample. Consequently, there is no evidence as to what percentage of obese adolescents these young women represent. A study similar to this which selects its subjects by random sampling could overcome this deficiency.

This study also encountered areas of interest that were not adequately explored. Of particular importance are the areas of peer influence and the influence of the family of origin. Findings with regard to grandmother involvement and the potential importance of a multigenerational transmission process were totally unexpected. There is no account of this in the research literature. This study did not directly interview grandparents or aunts or uncles so, consequently, all information about the family of origin came from the adolescents and their parents. A three generational study dealing directly with all members of the three generations could be very helpful in obtaining more detailed information in this area.

Several of the adolescents indicated that they were influenced by peers. This is an area that has been primarily explored by stigmatization research (Allon, 1978). An ethnographic study of peer interactions around eating and weight could help better understand this potential influence.

Finally, since family meals seem to have so often symbolized the family process, it would be useful in future studies to include direct observations of family meal patterns. This could be done through the use of a participant observer or through the use of videotaping.

This study sought meaning for obesity among five adolescent families. It found a rich heterogeneity of family idiosyncrasies which developed from shared basic factors. The commonality of these factors suggests that there is a family obesity system. An understanding of this system could possibly help to disentangle the Gordian Knot of adolescent obesity.

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APPENDIX A

ADOLESCENT OBESITY QUESTION SCHEDULE

The following questions will be asked the respondents indicated in the right hand column. Below each question is a reference to the methodological basis for that question (Penn, 1982; Merrit, 1980; Selvini, Boscolo, Cecchin, Prata, 1980). The following abbreviations are used: C.O. - Circular Question; E.O. - Ethnographic Question; O.H. - Obesity History; F - Father; M - Mother; S - Siblings; C - Client.

Question	Respondent
1. Why did the client come for treatment? (O.H.)	C,M,F
2. If I were in your home while this decision was being made what would I have heard you saying? Your mother, your father, your siblings? (E.O. - Descriptive; C.O. - Verbal Information; Coalition Alignment)	C,F,M,S
3. What is your explanation for why the client has a weight problem? (C.O. - Explanation Question)	C,M,F,S
4. I'm interested in your previous dieting attempts. Could you describe from the first one that you remember all you can about each one? (O.H.; E.O. - Descriptive; C.O. - A Different Sequence)	C,M
5. What is your explanation for why the client's previous dieting attempts have failed? (C.O. - Explanation Question)	C,M,F,S
6. What is the client's meal pattern and snacking behavior? (O.H.; E.O. - Descriptive Question)	C,M

Question	Respondent
7. I am interested in how your family purchases your food, especially how it is decided what to purchase, and what is available to snack on? (O.H.; E.O. - Descriptive)	M
8. I'd like to know who decides what the family eats out of the home, especially school time meals and snacks. (O.H.; E.O. - Descriptive)	M
9. Would you describe a typical lunch at school? (O.H.; E.O. - Descriptive)	C
10. How often and where does the family eat out? (O.H.)	C
11. If I were to eat out at (<u>most frequent response from Question 10</u>) with the family what would I hear each family member say to the client about his/her eating? (E.O. - Descriptive; C.O. - Coalition Agreement)	C,M,F,S
12. (Asked to respondents when it is reported in Question 11 that one family member verbally attacks the client.) When they say that to the client, what does the client do? Mother? Father? Sibling? (C.O. - A Different Sequence)	C,M,F,S
13. How much weight would you like the client to lose? (O.H.)	M,F,C
14. How much weight do you expect the client to lose? (O.H.)	M,F,C
15. (Ask when Question 14 is different from Question 13.) Could you explain why you expect this difference? (C.O. - Explanation)	M,F,C
16. I would like you to describe when you first noticed that the client had a weight problem. (O.H.)	M,F,C,S

Question	Respondent
17. Could you describe to me what the family was like at that time? (E.O. - Descriptive)	M,F,C,S
18. Who was the family concerned about then? Who was having tension? Conflict? (C.O. - Explanation)	M,F,C,S
19. When have you observed the client overeating the most? (O.H.)	M,F,S
20. At that time what is mother doing? Father doing? Sibling doing? (C.O. - Different Sequence)	M,F,S
21. How does the client's overeating affect what mother is doing? Father? Sibling?	M,F,S
22. Could you describe a typical dinner at your house and describe what goes on? (E.O. - Descriptive)	M,F,C,S
23. Could you describe getting a typical snack in the evening and what everyone says? (E.O. - Descriptive; C.O. - Coalition Assignment)	C
24. If I were sitting at your dinner table what kinds of things would I hear your family saying? (E.O. - Structural)	M,F,C,S
25. I'm interested in the way you and your family members refer to being overweight. What do you call it? (E.O. - Structural)	M,F,C,S
26. <u>(This is filled out based on information from other questions)</u> ... when I overeat. Can you think of any other names/terms that might go in that sentence? (E.O. - Structural)	C
27. (Previous question) ...when I start on a diet. Can you think of any other names/terms that might go in that sentence? (E.O. - Structural)	C

Question	Respondent
28. Every family has their own special unspoken family rules. What are yours? (E.O. - Descriptive)	C,M,F,S
29. Here are a list of family rules. Show me the ones that you feel apply to your family. Can you add any for your family that are not there? (E.O. - Structural)	C,M,F,S
30. If your family had a family motto, what would it be? (E.O. - Descriptive)	C,M,F,S
31. Who in the family is most like Mother? Least? (C.O. - Classification; E.O. - Contrast)	F,S,C
32. Who in the family is most like Father? Least? (C.O. - Classification; E.O. - Contrast)	M,S,C
33. Can you tell me about your Grandparents? Aunts? Uncles? (E.O. - Descriptive)	C
34. Which of them are you closest to? Least? (E.O. - Contrast; C.O. - Classification)	C
35. Among the immediate relatives (Grandparents, Aunts, Uncles), who is the most concerned about the client's weight? Least? (C.O. - Classification; E.O. - Contrast)	C,M,F
36. Who among the immediate relatives now have a weight problem? Who had one while growing up? (O.H.)	M,F
37. Who else in your immediate family now has a weight problem? How have they felt about it? (O.H.)	M,F
38. (Refer to Question 37) Could you describe what (see #37) has done to solve their weight problem? (E.O. - Descriptive)	M,F
39. (Refer to Question 37) Who is most concerned about (see #37) weight? Least? (E.O. - Contrast; C.O. - Classification)	M,F,C,S

Question	Respondent
40. Client (Mother/Father/Sibling) how do you see the relationship between Mother/Father, Mother/Sibling, Father/Sibling, Sibling/Sibling? (C.O. - Coalition Agreement; E.O. - Contrast)	C,M,F,S
41. Who is Mother (Father, Client, Sibling) closest to? (C.O. - Coalition Alignment)	M,F,S,C
42. Who "gets after" you most about your weight? When this happens what does Mother/Father/Sibling do? (C.O. - Different Sequence)	C
43. When the parents argue, what does Client/Sibling do? (C.O. - Different Sequence)	S,C
44. If the client fails to lose weight during this program what do you think Mother would say? Father? Sibling? Client? (C.O. - Different Sequence; E.O. - Contrast Question)	M,F,C,S
45. Who usually first suggests that you start a diet? Who next? Who next? (E.O. - Contrast; C.O. - Different Sequence)	C
46. Who reminds you about your diet the most? When this happens what do the other family members do? (C.O. - Different Sequence)	C
47. When the client complains or acts upset about their weight what does Father do? Mother? Sibling? (C.O. - Different Sequence)	F,M,S
48. Who is the most sensitive person in the family? Next? Least? (C.O. - Classification; E.O. - Descriptive)	F,M,S,C
49. Who in the family has the greatest interest in food? Next? Least? (C.O. - Classification)	F,M,S,C
50. If the client lost all the weight that they desired, who would be most happy? (C.O. - Classification)	M,F,S,C

Question	Respondent
51. When (<u>Important Family Event</u>) occurred did (<u>person most interested in client weight loss</u>) pay more or less attention to the client's weight? Eating habits? Appearance? (C.O. - Diachronic)	M,F,S
52. If one of the children should have to stay at home without getting married who do you think would be best for your Mother? Father? (C.O. - Different Hypothetical Circumstance)	C,S
53. How would the client be different if he/she lost weight? (C.O. - Different Hypothetical Circumstance)	M,F,S
54. How would the family be different if the client lost the weight that they desired? (C.O. - Different Hypothetical Circumstance)	M,F,S
55. If one member of the family had to be overweight who would it bother the most being that person? The least? (C.O. - Different Hypothetical Circumstance)	M,F,C,S
56. If Sibling had two treats who would they share one treat with first? Father? Mother? Client? (C.O. - Coalition Alignment)	F,M,C,S
57. When Mother mentions the Client's weight problem who comes to the Client's support? What do they say? Father? (C.O. - Coalition Alignment; E.O. - Descriptive)	M,F,C,S

APPENDIX B
 QUESTIONS WHICH EVOLVED DURING STUDY

Question	Respondent
1. Describe a typical clothes shopping trip. (E.O. - Descriptive; C.O.)	C,M
2. Describe what you eat at friend's houses. (E.O. - Descriptive)	C
3. When you were growing up what messages did your mother give you about food and your weight? (E.O. - Descriptive)	M,F
4. Which sibling embarrasses you most about your weight? Describe how they do it. (E.O. - Descriptive; C.O. - Coalition)	C
5. Tell me about your secret eating that the family does not know about. (O.H.)	C
6. What does someone being fat say to you about them? (E.O. - Descriptive)	C,M,F

APPENDIX C

DOMAIN ANALYSIS WORKSHEET

-
1. Semantic Relationship _____
 2. Form _____
 3. Example _____
-

Included Terms

Semantic Relationship

Cover Term

APPENDIX D

DESCRIPTION OF METHODOLOGY

The data that appears in this study were primarily derived from journal notes and audiotapes. Journal notes were taken after each of the adolescent weight loss groups as well as after each visit the researcher had with a family member. Audiotapes were made of each family or individual family member interview. Once permission was obtained from the members involved for the taping of the interview, the audiotape was activated and left running during the entire interview process. It was turned off only if a single family member was being seen alone and had left the room for a period of time.

At the conclusion of the interview process all audiotapes were reviewed. They were reviewed consecutively by family. All of one family's tapes were reviewed and analyzed before proceeding to the next family's tapes. Each tape was repeatedly listened to, and any comment that suggested a potential domain of interest or seemed to fit a previously defined domain of interest was entered verbatim onto a domain analysis worksheet. A domain is defined as an area which is characterized by a specific feature. Index cards (5 inches by 8 inches) were used for these worksheets.

Domains were selected totally from within context of that individual family. The researcher attempted to avoid any generalizing across families while developing these domains. Further, no limits or preconceived standards were utilized in the selection

Appendix D - Continued

of potential domains. Notes from journal entries were similarly reviewed for observations that might establish or be consistent with an existing domain.

The domain worksheets for each family were color coded in a separate color. This was done to ease separation of the families when these sheets were compared together. Once the process of developing potential domains was completed with each family, all of these family worksheets were compared and grouped together when more than one family shared a common domain. A chart was developed following this grouping which listed the identified domains and which families shared these specific domains. This helped in uncovering patterns that existed across families and in identifying potential subgroups of families which shared similar characteristics.

To further analyze the data and to see if a taxonomy could be established as existing across families, the domain chart was subjected to further study (Table 2). The domains on the chart were entered onto large newsprint paper. Each domain title was placed consecutively down the right side of this paper while each family's name was placed across the top of the same sheet. To this all of the verbatim quotes from the worksheets were added with each quote being placed to the left of the appropriate domain title and under the appropriate family. This resulted in the

Appendix D - Continued

development of a large chart which served as a cross reference for all of the family quotes and domains organized by family units. This chart, which covered ten large newsprint pages when finished, provided a large but easy media for examining the data.

It became clear from the initial examination of this data that the domains themselves emerged at different stages of the obesity process (predisposition, initiation, maintenance) and that the domains varied among themselves in the number of the stages in which they were involved. Some were significant in each stage of the obesity while others were only a factor in a single stage. Consequently, each domain and its data were analyzed as to where it emerged in the obesity process and which stages of that process it affected. To accomplish this, separate charts were developed for each of the obesity stages, and the domain data pertinent to that stage was transformed from the master chart onto these charts and examined. These charts were then used in the final writing process as the primary source from which the data was derived. In doing a final componential analysis in the search for potential cultural themes, the charts of the stages as well as a master chart were compared and examined together.

APPENDIX E
OBSERVER REVIEW

The following observers have reviewed the transcribed material, domain analysis worksheets and material utilized in the final study. The material in the study was found to accurately reflect the transcribed interviews.

Mark W. Prosser, M.S.

Debra Cole Russell, M.Ed.

Table 1

Respondent Demographic Information

	White	Black	Brown	Green	Gray
Age	15	15	14	13	13
Age of Onset	6	10	6	6	11
Height	62.00	60.75	66.25	64.50	60.33
Initial Weight	222.75	129.00	196.86	174.25	114.75
Desirable Weight	110-120	95-105	135-145	118-128	98-108
Percent Overweight	93.70	30.00	40.72	41.66	11.04
Total Weight Loss (lbs.)	-5.37	+1.00	-4.00	-2.50	-2.75

Table 2

Componential Analysis Across Families

Contrast Set	White	Black	Brown	Green	Gray
Biological Factors	*				*
Snacking Behavior	*	*	*	*	*
Low Activity		*		*	*
Emotional Eating	*	*	*	*	*
Special Status			*		*
Dieting Effects	*		*		*
Meal Skipping			*	*	
Cognitive Distortion	*		*	*	
Defective Hunger Signals				*	
Early Onset	*	*		*	
Emotional Meaning to Family	*	*			
Presence of Negative Comments	*		*	*	
Solutions Contributing to Problem	*	*		*	
Parental Denial			*	*	*
Enmeshment Present	*	*	*	*	*

(table continues)

Contrast Set	White	Black	Brown	Green	Gray
Double Bind Communications		*	*	*	
Sibling Involvement	*		*		*
Mealtime Conflict	*		*		*
Shopping Conflict	*		*	*	*
Father Involvement in Dieting	*		*	*	*
Secret Eating	*		*	*	*
Parental Ambivalence About Weight	*		*	*	*
"Perverse" Triangles	*		*	*	*
Parental Marital Dysfunction	*	*	*	*	*
Respondent Youngest Child		*		*	*
Respondent Only Girl	*		*	*	
Mother Is Homemaker		*	*	*	*

Note: An asterisk indicates the presence of this domain in the indicated family.

Table 3
Respondent Mothers and Daughters Scoring on
Faces II Adaptability and Cohesion Scales

	<u>Cohesion</u>			
<u>Adaptability</u>	<u>Disengaged</u>	<u>Separated</u>	<u>Connected</u>	<u>Enmeshed</u>
Chaotic				
Flexible				
Structured	White Mother	Gray Mother	Gray Daughter Black Mother	Black Daughter
Rigid	White Daughter Brown Mother	Green Mother Brown Daughter	Green Daughter	

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