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OBESITY IN CHILDREN:
A COMPREHENSIVE TREATMENT
APPROACH FOR FAMILIES

by

Grace Powless Sage

Presented in partial fulfillment of
the requirements for the degree of

Master of Arts

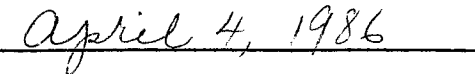
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ABSTRACT

Sage, Grace Powless, M.A., Spring 1986

Psychology

Obesity in Children: A Comprehensive Treatment Approach for Families (56 pp.)

Director: Philip H. Bornstein *PWB*

Until recently, the treatment of obesity has typically been explored in preadolescent, adolescent, and adult populations. The results of more recent family-based treatment programs with 5-to-8-year-old children has provided encouragement for continued efforts. The purpose of this study was to evaluate the effectiveness of a multicomponent behavioral treatment program with 3-to-6-year-old children and their parents. Overweight children and their parents were given a choice to join a 6-week treatment condition or a waiting list control condition. Families who chose the treatment condition received a multicomponent behavioral program for themselves and their children. Participants in the waiting list control condition received only pre-and-post measurements. The treatment group children showed a significant decrease in their percentage overweight, while their parents showed increased use of behaviors related to healthful eating, nutritional factors, physical activity and weight control.

DEDICATION

To my dear family, Tom, Chad, Dennis and Max
whose unwavering support of me is a
continual source of strength.

ACKNOWLEDGEMENTS

The author wishes to express her thanks to Ms. Mary Feuersinger, M.A., R.D., Nutrition Services Director, for her enthusiasm in developing this project and her willingness to support that effort. A special thanks is due to Dr. William Cook who volunteered his services, and whose supervision and advice were a continual source of encouragement. Last, but not least, sincere gratitude is extended to the parents and children who participated in this study. Without them, this research would not have been possible.

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INTRODUCTION

Obesity is a multidimensional disorder whose prevalence is increasing and whose conditions flourish in their resistance to understanding and treatment. Depending upon the criteria used to define obesity and the samples studied, estimates of the prevalence of obesity among adult Americans range from 40 to 80 million (Jeffrey & Katz, 1977). Juvenile obesity affects approximately 25% of all children (Forbes, 1975), and there is a high probability that obese children will become obese adults. Obesity is a serious matter with physiological, psychological and social hazards. Despite warnings by the Public Health Service and leading health authorities, the spread of obesity continues unabated. Treatment remains an elusive and puzzling alternative. Diet plans abound and an estimated \$16,000 is spent every minute on dietary devices and programs (Jeffrey & Katz, 1977). Confusion is further compounded by the variety of treatments available, ranging from group self-help programs, to medical measures to behavioral management techniques (Leon, 1976).

This paper will initially review the history of the problem of obesity and examine the current conception of the problem within the general population. More specifically, it will address the physiological and psychological effects of obesity in children and briefly review current treatment

for children and families. Finally, this paper will propose research that is a modification of the 1977 Pennsylvania State University study (Preschool Eating Patterns Program) which was designed to assess a preventive obesity treatment program for families with preschool age children (Smiciklas-Wright & D'Augelli, 1978).

History

Historically, the problem of obesity has waxed and waned as a function of survival and cultural factors. Christakis (1967) has posited that it has been "the companion of mankind" for over 12,000 years as evidenced by the small carving of a plump figure from the Stone Age. In studying man's prehistory, it may be profitable to remember man's beginnings as a struggle to survive in an environment with few options between feast and famine. This may have caused the emerging species to "learn" physiologically to store food and to live off that surplus in times of scarcity and famine. As the hunter-gatherer life style diminished in favor of an agricultural economy, social customs became a potent dictator of the size and weight of people. More pertinently, it has been speculated by Mayer (1968) that as this country developed the Protestant ethic and philosophy of hard work advanced the physiological base already established. Food and work were viewed as necessary to the process of building a nation. But with technological advances in agriculture, food processing, and food storage, society

began to view and value food as more than a source of nutrition. It became a medium of exchange, a political attribute, as well as a source of pleasure and entertainment. With the decrease in physical output and an increase in the food intake, society realized a heretofore, practically unheard of problem, obesity.

At the present time, thinness has become, perhaps, a national obsession. Magazines, newspapers, advertisements, radio, and television regularly bombard us with messages of the negative aspects of being "overweight" Americans and make available several "cures" for the overweight (Mayer, 1968). Although an examination of the history of the concept of obesity gives one a useful background against which to view the current problem, several features, specific to the American culture need to be addressed. Keeping in mind these potent inborn physiological underpinnings we must now expand our concept of obesity to include a powerful socioeconomic factor in this ostensibly famine-proof culture.

There appear to be two interrelated explanations for the growth of obesity as a current health problem (Stuart & Davis, 1972). Both the eating habits and the activities of Americans have changed in keeping with our social development. With the increase of food as a recreational outlet and the decrease of energy being expended at work and at play, the potential for excessive weight gain prevails.

The constitutional and environmental factors of obesity

are further complicated by a history of difficulty in determining and defining exactly who is obese. Webster's Dictionary (1983) defines obesity as "a condition characterized by excessive bodily fat". But the human body is composed of a number of variables: fat, muscle, bone and in "normal" individuals these components vary as a function of age, sex and height. What one measures depends upon one's preference for simplicity, sophistication or accuracy. Although surface measures (such as the "pinch test" or the "ruler test") are the most common, anthropometric measures (such as thickness of the fat pad on soft tissue x-rays or measurement of skinfold thickness by a calibrated caliper) and measurement of fat as a percentage of body weight are the more valid of the methods used. The simpler measurement techniques have proven useful in determining and predicting excessive body fatness. While the sophisticated measurement techniques have been more representative and reliable assessments of body composition, they are desirable techniques in helping to determine more accurate body fat-content and in estimating the extent of the obesity in an individual. Comparison of the studies of obesity is hindered then, by different measurements of body fat taken and the different criteria used to define the problem in each study. Stunkard, d'Aquili, Fox, and Fillon (1972) defined as obese the 10% of each sex (at each age from 6 - 12 years) that had the thickest triceps skinfold, while Fisch, Bilek, and Ulstrom

(1975) defined as obese those children and adolescents whose weight to height ratios exceeded the 95th percentile. Trends in obesity also appear to be related to socio-economic class and race (Weisenberg & Fray, 1974). Fisch, Bilek, and Ulstrom (1975) found that obesity in infancy, age 4 and age 7 was also associated with the height and relative weight of the mother. Thus, it seems that genetic or environmental variables, rather than weight at birth alone, may influence overweight later in childhood.

Underlying this complex disorder are the physiological theories of obesity. There is great variability in weight among humans but a remarkable consistency within most individuals over time. Keesey (1980) posits that each individual has an ideal biological weight (the set point theory), and some have weights far above the culture's ideal. The set point acts much like a home thermostat that regulates the temperature around an ideal. Although it has been known for many years that lab animals will adjust food intake and physical activity to compensate for starvation or forced feeding, only recently have studies suggested that the same regulation may occur in humans (Brownell, 1982). It appears that the body makes metabolic adaptations to mediate its defense of the set point (Keesey, 1980). Another mechanism in the origin of obesity is adipose tissue which is an important determinant of body weight (Sjostrom, 1980). That is, weight gain can occur through an increase in the number

of fat cells (hyperplasia) or by an enlargement of the existing cells (hypertrophy) (Bjorntorp & Sjostrom, 1971). Yet another factor is the American diet. Persons may be cursed by preferring "fattening" foods and by a culture that provides unlimited access to these foods (Brownell, 1982).

The psychological hazards of obesity may well be as complex as their physiological underpinnings. Society has a strong bias against overweight persons (Allon, 1979). The bias has been detected in children as young as age six (Staffieri, 1967). Furthermore, obese persons are stigmatized for their obesity and suffer from being blamed for their condition. They are often labeled with terms that imply personal responsibility (lacking self-control, lazy, weak, etc.). Stunkard and Rush (1974) found some forms of dieting to be associated with adverse emotional symptoms. Thus, some of the psychological perils of obesity seem to lie in its remedy as well as in its occurrence.

Effects on Children

Obesity in children is a prevalent and serious matter. Winick (1974) has termed childhood obesity "perhaps the greatest 'nutritional danger' in our country today". This seems particularly important, not only in terms of its prevalence, but also because of its future implications. Several investigators have noted that there may be "critical periods" for the development of obesity. Hirsch (1975) asserts there are at least three critical times in which nutrition has

a major impact on development: during the last trimester of pregnancy, during the first three years of life, and adolescence. Heald (1975) calls infancy, the first six years of life, and adolescence "peak periods" for obesity development. The resounding conclusion seems to be that most obese children become obese adolescents and most obese adolescents become obese adults (Brownell, 1982). Childhood obesity has shown itself to be particularly resistant in that weight gain during the first six months of life increases the probability of later obesity. Charney, Goodman, McBride, Lyon, and Pratt (1976) provided data to help clarify relationships between weight at birth, at six months and later in life. A startling discovery was that weight attained during the first six months was more influential in predicting adult weight status than weight attained at any other time.

Obesity is also related to increases in physiological risk factors among children and adolescents. It is associated with decreased growth hormone release, hyperinsulinemia, carbohydrate intolerance, hypertension, and hyperlipidemia (Brownell & Stunkard, 1978; Coates, Jeffery, Slinkard, Killen & Danaher, 1982). There is some evidence that obesity in children makes an independent contribution to risk for coronary heart disease (McLain, 1976). Coates, et al. (1978) assert that the weight loss can promote positive reductions in cardiovascular risk factors among children and adolescents. Psychological and social consequences of obesity in children

can be quite negative (Brownell & Stunkard, 1980). Both thin and fat children rated obese children as less likeable than children with gross physical handicaps (Maddox, Back & Leiderman, 1968). Lerner and Schroeder (1971) supported this finding with a study in which normal and obese children rated "chubby" children as children they would like to resemble the least. And despite the fact that obese high school seniors performed equally as well as their normal weight peers on standardized achievement tests, they experienced lower acceptance rates at high-ranking colleges (Canning & Mayer, 1967). Overall, investigators have concluded that many obese persons detest their bodies and are preoccupied with weight (Stunkard, 1976). This may be especially true when the obese children are less socially skilled, less mature, and may suffer discrimination from peers. Further, it has been established that the association between obesity and psychological attitudes is acquired early in childhood and is important in determining adult body weight (D'Augelli & Smiciklas-Wright, 1978).

Treatment Issues--Parents and Child

Evidence abounds that obesity follows family lines (Coates & Thoresen, 1978). A child with two obese parents has three to eight times the chance of being obese than a child with two lean parents (Garn & Clark, 1976). In addition to genetic and physiological explanations for this tendency, there are social and behavioral contributing factors

which may be amenable to treatment. The family appears to have two basic influences on children's eating habits: 1) control of food choices; and 2) implicit and explicit instruction of eating habits. In the first case, it is clear that parents have considerable control over the quality and quantity of food ingested by their children. In the second case, parents not only guide the eating and physical patterns of their children directly, but also indirectly model the use of food and physical activities for their children (Mayer, 1968).

The above would suggest, then, that treatment of the family would be effective in dealing with childhood obesity. Indeed, treatments that have attempted to treat the child in isolation from the family have met with little success (Foreyt & Goodrick, 1981). Recently, studies that have used multifaceted programs including family involvement, exercise, nutrition, and traditional behavioral techniques have been more successful in achieving weight loss, maintenance of the loss and controlling attrition rate than any single focused technique or program (Coates, Jeffery, Stunkard, Killen & Danaher, 1982; Aragona, Cassady & Drabman, 1975).

Within the family context the most promising approach appears to be a behavioral approach based on social learning theory (Brownell & Stunkard, 1978). In general, behavioral treatments for weight loss have provided therapists with: 1) procedures; 2) reduction of attrition; 3) eradication

of untoward emotional symptoms (such as immaturity, lack of self-esteem, etc.); and 4) improvement in the precision in studying weight and behavior change (Brownell & Stunkard, 1981). In contrast, techniques like lecture and verbal persuasion do not appear to be effective in the treatment of childhood obesity. Witness the limited weight loss, poor maintenance, and large attrition rates in studies utilizing such adult techniques with children (Jeffery & Coates, 1978). Moreover, such studies have attempted to treat the child in isolation from the family. Jeffery and Coates (1978) contend that social modeling and guided practice might be more effective in teaching and rehearsing weight loss skills than lecture or verbal persuasion. This is particularly useful when looking at parents or other family members for involvement since having skilled social support may be a highly influential component of any treatment program for obese children. The presence of skilled social support seems to insure consistency of performance within the natural environment (Brownell, et al., 1978).

What needs to occur is an integration of behavioral treatments with programs emphasizing the prevention of overweight and obesity before its occurrence. Kristein, Arnold and Wynder (1977) have recently called the benefits of prevention "staggering". A dual emphasis that integrates both situational cues and individual responses allows for comprehensive focus for intervention. But any intervention that

sees prevention as its primary target must foster and employ a family approach (D'Augelli & Smiciklas-Wright, 1978). Stunkard and Mahoney (1976) cite four important components for preventive programs: 1) self-monitoring that focuses on eating behavior as opposed to weight, 2) nutritional information which allows for long-term weight control, 3) environmental cues to regulate food intake, and 4) training family members in social reinforcement to maintain habit change. The physical, personal, and social disabilities concomitant with childhood obesity necessitate early intervention and prevention. Although prevention has children's weight control as its major target, it helps parents as well, and weight control for the entire family can be achieved.

Proposal for Research

This research is attempting to explore the problem of obesity in children in a preventive way. It is a modification of a program initiated in 1977 by Smiciklas-Wright and D'Augelli at Pennsylvania State University (Preschool Eating Patterns Program) for families with preschool-age children. Presented here will be a description of some of the features of the Pennsylvania State University program which will be incorporated in this study. Following that will be a discussion of the modifications that will be implemented in this research. The features of the Pennsylvania State University program place emphasis on: 1) prevention, 2) the family unit, 3) behavioral strategies for habit change,

and 4) behavior and nutrition for a comprehensive focus.

Emphasis on Prevention

This program attempts to develop habits in preschool age children in three basic ways: 1) food selection in terms of high nutritional value and exposure to a high variety of foods, 2) eating habits which include slow eating, moderate portions, chewing and tasting of food to increase the pleasure of eating, and 3) activity habits emphasizing energizing, enjoyable activities rather than exercise.

Emphasis on the Family Unit

This program is for parent(s) who are interested in making changes in food selections, eating habits, and activities. Using parent(s) is based on several premises: 1) changes in behaviors cannot occur without encouragement and support in the family unit, 2) parent(s) are extremely powerful factors in the family system, 3) lasting changes in the family units are best accomplished by those within, and 4) parent(s) "socialize" eating and activity patterns in their children. Prevention, in young children, therefore, can proceed most effectively within the family system and be directed by parent(s). The parent(s) first assess the current status of their children and the family unit in their food selection, eating habits, and activities. Next, they plan simple changes to try, and finally, the parent(s) can evaluate their progress with regard to these changes. This three-step process appears to be an easy model that

parent(s) can integrate into many different life styles. Using the family system broadens the preventive impact of this program. Furthermore, the entire family unit can benefit by modifying current health-related issues and no single family member need be labeled as "the problem" or the only one to need help.

Behavioral Strategies for Habit Change

Behavioral strategies have been found to be highly effective, not only in controlling obesity, but also in preventive programs (Pomerleau, Bass & Crown, 1975). Furthermore, parent(s) can be trained to apply behavioral strategies most effectively (Mash, Handy & Hamerlynck, 1976). For this particular program, parent(s) are asked to pinpoint specific and advantageous behavioral changes. A behavioral strategy is designed, with parent involvement, that can be incorporated into the family system. Behavioral strategies would include reinforcement procedures for encouraging and supporting change and extinction procedures for decreasing unwanted behaviors. Active modeling by parent(s) is yet another behavioral strategy. The behavioral strategies are based on a learning model and changes occur over time. Therefore, parent(s) must practice the new strategies until they are learned and then take time to allow the strategies to work before incorporating the new behaviors into the family system.

Emphasis on Behavior and Nutrition

The family unit, when used for the prevention and development of children's health habits sometimes necessitates both nutritional information and behavioral strategies to accomplish change. To this end, the group, when led by multidisciplined leaders, are likely to be the most successful. The nutritionist, then, can assist the family in identifying goals for change while the behavior specialists can present change strategies. These resources provide the family unit with information and support so that the desired changes are likely to succeed (D'Augelli & Smiciklas-Wright, 1978).

Modifications

While the present study incorporated these four essential features into its program, some modifications were planned. First of all, the target population was low-income families. Disagreements still exist among outcome studies using demographic data and its relationship to obesity. The variable that has the strongest relationship to obesity and is least disputed is the socioeconomic status (income, occupation, and education) (LeBow, 1984). Garn, Hopkins and Ryan (1981) found in the Techumseh Community Health Survey data, greater numbers of obese and heavier youngsters in median-income families than in families with incomes below the poverty level. But, longitudinal data from the Techumseh Community Health survey suggested that gains in fatness change and

the poorer tend to put on more fat than their median-income counterparts. Garn and colleagues called this phenomenon an "income related reversal of relative fatness". Thus, the economic connections to the development of childhood obesity are intriguing and worthy of investigation.

A second focus for this study was to develop a treatment program specifically aimed at preschool-age children. Substantial evidence exists to show a connection between the birth weight of the infant and childhood obesity (Powers, 1980; Gross, Sokol & King, 1980; Harrison, Udall & Morrow, 1980). Ginsberg-Fellner and Knittle (1981) suggest that "intractable obesity" is "born early" and provided evidence for that statement by collecting data which showed children with adipose hypercellularity and enlarged fat cells. This has led to the focus of attention being directed toward the early treatment of the obese child. Ginsberg-Fellner (1981) and Hagar, Sjostrom, Arvidsson, Bjorntorp and Smith (1978) contend that treatment of the obese youngster's hypercellularity before it reaches adult norms could slow the rate of fat-cell proliferation.

Last of all, this study focused on the treatment of the obese child and their family, while also concentrating on behavioral education, nutritional education, and physical activity. The family based multi-focused treatment approach has found effective results with adolescent and pre-adolescent populations (Epstein, Wing, Koeske, Andrasik, & Ossip, 1981;

Epstein, Wing, Koeske, Ossip & Beck, 1982). It seemed worthwhile to investigate how effective this treatment approach was with preschool-age children and their families.

METHOD

Subjects

The subjects were recruited for this obesity treatment program from families who were participants of and referred by the Women, Infants, and Children (WIC) Program in Missoula, Montana. Twelve children (aged 3 - 6), whose weight fell above the 90% percentile for the child's age, sex, and weight norms, (National Center for Health Statistics Growth Chart, DHEW, 1983) (see Appendix A) were selected and assigned to either an experimental or a waiting list control group. The parents of the experimental group children were involved in the parent portion of the program and were informed of the following procedures.

Procedure

Sixteen families (parents and children) were asked to attend the initial treatment meeting and complete the Family Eating and Activity Patterns Questionnaire (FEAPQ) (see Appendix B). The FEAPQ is a 17-item paper-and-pencil checklist used to assess eating behaviors related to family and parental behavior patterns and weight control. The FEAPQ was designed for the Preschool Eating Patterns Program in February, 1977, at Pennsylvania State University by Smiciklas-Wright and D'Augelli. Parents were then given

a brief description of the treatment program and asked to make a choice to participate or be placed on a waiting list. Measurements of weight status for all children (6 treatment members and 6 control group members): height, weight, and percentage overweight, was obtained at the beginning and end of treatment. (Height was not used as a dependent measure, rather it was used in conjunction with weight to calculate percentage overweight.)

Treatment Program

It has been shown time and again that obesity, as a nutritional and behavioral disorder, is highly resistant to treatment (Brownell, 1982). Increasingly, researchers have developed programs to include parents in treatment for some of the following reasons (Brownell, Kelman & Stunkard, 1983; Israel, Stolmaker, Sharp, Silverman & Simon, 1984; LeBow, 1984). Parents are thought to be particularly useful and unique in the treatment of obesity since they generate information and feedback and observe changes taking place. Parents are generally concerned with similar unwanted eating behavior patterns and are able to formulate viable alternatives in a supportive group atmosphere with other parents sharing similar concerns. Furthermore, parents are usually exhilarated by the experience of being able to help and care for their children in productive ways. Lastly, the acceptance that parents receive from other parents in similar situations may serve to normalize their situations, while motivating

and influencing change.

This particular treatment program involved two groups: a parent group and a children's group. These two groups interacted with each other, as well as functioning as separate entities. Both groups received the same basic treatment program. All treatment sessions for parents group were conducted by a licensed clinical psychologist. The children's group was led by a graduate student in Clinical Psychology who was supervised by the parents' group leader. The third member of the treatment team was a nutritionist who was employed at WIC services. Participants in the treatment group attended six weekly 90-minute sessions of the obesity treatment program. At the end of the six-week treatment program, the waiting list control group was contacted and offered the same treatment program.

Key Concepts

Basic to this treatment program is the understanding that it is a problem-solving approach which includes treatment goals. Because this approach is oriented toward problem-solving, it recognizes the contribution of both the individual and the environment in the generation and maintenance of the problematic conditions. The focus for treatment, therefore, must be two-fold. The main focus of this treatment was to help the parent group members to become better observers of their child's environment with regard to the eating behaviors, nutritional diet and physical activities. Secondly,

the focus was on the parent group members and enabling them to learn new ways of controlling less desirable behaviors concerning weight control more effectively. Six steps were followed by the parent group to maintain this focus and achieve their treatment goals.

1) Assessment. What is required as a first step is the careful observation of the individual's actual behavior, paying close attention to related situational factors. Of major concern is isolating the behavior (eating) and the circumstances in which it takes place.

2) Specificity. Closely related to the behavior (eating) is the emphasis on conditions that specify as clearly as possible the nature of the behavior. That is, knowing when, how, and where the behavior is experienced or expressed.

3) Establishing Treatment Goals. Stating in concrete ways the kinds of behaviors that members find problematic and want to change. Generally, the goals involve one or more of the following: acquiring behavior, maintaining behavior, strengthening behavior, and eliminating behavior.

4) Treatment Plan. After establishing specific goals, it is necessary to choose the most appropriate method for successfully accomplishing these goals. Although the diversity and differences of the group are encouraged and developed, the treatment plan must be specific to each individual. This effort is heightened by the information and feedback generated by and for the group.

5) Intervention. Since each individual is the target of intervention, every source must be used to achieve the individual goals within the group. The group members, the individual, as well as the environment are all viewed as viable sources of influence. Therefore, it is important to build a group whose members strive to support each other to achieve individual goals and influence other members.

6) Evaluation. Ongoing and continuing evaluation by group members served to improve the goals and treatments of each individual and the group as a whole.

Parent Group

The parent group had six weekly objectives, in addition to maintaining this overall treatment approach.

Week I A) Evaluation of family eating patterns, and habits.

Week II A) Nutritional information - planning long-term eating patterns, behaviors and habits for family.

 B) Evaluation, planning, assessment of Week I group/individual experience.

Week III A) Evaluation of family activity patterns, behaviors, and habits.

 B) Evaluation, planning, assessment of Week II group/individual experience.

Week IV A) Evaluation of environmental control, effects or variables that influence food intake.

B) Evaluation, planning, assessment of Week III group/individual experience.

Week V A) Identification and evaluation of the unwanted outcomes and effects of overeating.

B) Evaluation, planning, assessment of Week IV group/individual experience.

Week VI A) Social reinforcement training, modeling, use of positive consequences and food management training for family members to encourage and maintain habit change.

B) Evaluation and assessment of Week V and VI group/individual experience.

C) Review Week I - Week VI.

(See Appendix D for details of weekly treatment activities.)

Children's Group

The children's group had the same weekly objectives as the parent's group, but the procedures followed were to have six different activities during the 90-minutes with weekly variations. The parent(s) were aware of these activities to encourage and support their children's efforts. The children's group used some of the nutritional materials available through WIC services for teaching purposes. Any or all the activities were used at the discretion of the group leaders.

Week I - Week VI

1) The 1, 2, 3's of Eating Song (sung to "This is The Way We Wash Our Clothes...")

This is the way we sit down to eat,
 sit down to eat, sit down to eat.
 This is the way we sit down to eat,
 At every meal time.

This is the way we pick up our fork,
 pick up our fork, pick up our fork.
 This is the way we pick up our fork,
 Before we take a bite.

This is the way we put down our fork,
 put down our fork, put down our fork.
 This is the way we put down our fork,
 Before we begin to taste.

This is the way we taste our food,
 taste our food, taste our food.
 This is the way we taste our food,
 Before we begin to chew.

This is the way we chew our food,
 chew our food, chew our food.
 This is the way we chew our food,
 Until our mouth is empty.

This is the way we swallow our food,
 swallow our food, swallow our food.
 This is the way we swallow our food,
 Until our stomach's full.

Now our stomach says "I'm full",
 says "I'm full", says "I'm full".
 Now our stomach says "I'm full",
 and I am finished eating.

2) The A, B, C's of Eating

A - apple
 B - banana
 C - candy
 D - etc.

To encourage the enjoyment of eating through taste,
 touch and smell, etc. What do we taste? Is it hard, soft,
 sweet, sour?

3) Color Our Feelings

Red, Black, Orange, Yellow, Green, Blue, White, Brown,

Pink, etc. To gain an avenue for the expression of feelings. What do you think/feel with this color on you? On someone else? What are happy, sad, mad, etc., colors?

- 4) Mirror, Mirror,
look at me -
Who do I see?
Draw me.

To establish body image ideas for self and others. To encourage talking about self, using the occasion to heighten self-awareness and self-worth.

- 5) Shape and Size of Things

To name shapes and sizes without assigning value to them. To encourage talking about names that people have called them and what that felt like.

- 6) Animal Activities

To choose favorite animals and move like them. For example, stretch neck like a giraffe; hop like a rabbit, frog; slither like a snake; roll like a panda; use facial movements like a gorilla or orangutan.

(See Appendix D for details of weekly treatment activities.)

Measurement

Two measures of weight change were used: change in body weight and change in percentage overweight (percentage above average weight for the child's age, sex, and weight-norms from the National Center for Health Statistics Growth Chart, DHEW, 1983) for children. The latter measure is significant because changes in body weight for children must be interpreted in light of their developmental growth.

Since normal growth involves increases in body weight, a child may gain weight while actually decreasing in percentage overweight. Children were weighed and percentage overweight was calculated at the beginning and end of the six-week treatment program.

One instrument, designed for the Preschool Eating Patterns (PEP) Program, the FAMILY EATING & ACTIVITY PATTERNS QUESTIONNAIRE, was administered to all parent(s) pretreatment and post treatment. It was designed to assess the frequency of specific parental and family behaviors related to weight control. Behaviors that limit situations in which eating can occur, encourage finishing eating when satisfied, and encouraging relaxed meals will be seen as health promoting. Less health promoting behaviors include parental pressure to "clean your plate", eating while watching television and eating meals quickly. Parents checked whether behaviors never occur, sometimes occur, frequently occur or always occur and each item received a score of 0, 1, 2, or 3, respectively. High scores on the Family Eating Patterns and Activity Questionnaire indicated a high relationship between behavior and weight control while low scores indicated a low relationship between behavior and weight control. This questionnaire helped to determine whether behaviors that are associated with healthful eating and weight control increased as a result of this program.

Finally, a consumer satisfaction measure was given

to parents who participated in the treatment portion of the program. The measure that was employed for this study was the Consumer Satisfaction Questionnaire (CSQ) by Larsen, Attkisson, Hargreaves, and Nguyen (1979) (see Appendix C). The CSQ is a general assessment measure of client satisfaction with high scores indicative of satisfaction with treatment and low scores indicative of dissatisfaction with treatment. The necessity for such a measure has been well documented (McMahon & Forehand, 1983; Bornstein & Rychtarik, 1983), and its role in outcome treatment evaluations cannot be understated.

Lastly, this program requested that all participants be measured after a six-month interval. This longitudinal data might have helped reveal any long-term effectiveness of a program of this nature. Further, it might have asserted and secured a need for ongoing, continued support of a preventive program for the treatment of obesity in families with preschool age children.

It was expected that the parents in the treatment group, after participating in this program, would score significantly higher at post testing on the paper-and-pencil measure than the waiting list control group parents. It was also expected that the children in the treatment group would experience weight maintenance over the waiting list control group children on both measures of weight change and percentage overweight. An analysis of variance with repeated measures was performed

to determine whether there were any significant differences pretest to post test and treatment group vs. control group on these two measures. Children assigned to the waiting list control group were seen on their regular monthly visits to the WIC program, but did not participate in any portion of the treatment program except for pretreatment and post treatment measurement. Parents assigned to the waiting list control group were contacted after the six week treatment program was completed and offered the treatment program at that time.

RESULTS

The mean and standard deviation on the Family Eating and Activity Patterns Questionnaire for the pretreatment experimental group were 17.875 and 2.54, respectively. In addition, the pretreatment mean and standard deviation on the same measure for the waiting list control group were 25.25 and 2.62. The post treatment mean and standard deviation for the experimental group were 22.25 and 3.02, while the waiting list control group figures were 21.375 and 2.80, respectively. The results of the analysis of variance for the Family Eating and Activity Patterns Questionnaire showed a significant main effect for the groups, $F(1,14)=7.764$, $p < .05$, pretreatment to post treatment. A Newman Kuels multiple range test showed that the control condition post treatment score was significantly lower than the control condition pretreatment score at the .05 level. In addition,

the experimental condition post treatment score was significantly higher than the experimental condition pretreatment score at the .05 level. Further, the pretreatment control condition score and the pretreatment experimental condition score were significantly different, indicating some initial group differences. (See Figure 1). The results of the analysis of variance showed a significant interaction from pretreatment to post treatment for the experimental condition and the control condition, $F(1,14)=33.216$, $p=.00014$, on the Family Eating and Activity Patterns Questionnaire. This indicates that the groups changed differentially from pretreatment to post treatment.

The means of the weight measurement for the experimental group and the control group pretreatment were 44.4167 and 38.25, while the post treatment figures were 44.7083 and 38.8333, respectively. The results of the analysis of variance on the weight measure showed no significance for either the experimental or the control group children at the .05 level. The pretreatment means for both the experimental and control group scores on the percentage overweight measure were .935 and .940, while the post treatment means on the same measure were .918 and .943, respectively. The results of the analysis of variance showed a significant interaction from pretreatment to post treatment for the experimental and control condition, $F(1,10)=44.998$, $p=.00016$, on the percentage overweight measure. A Neuman Kuels multiple

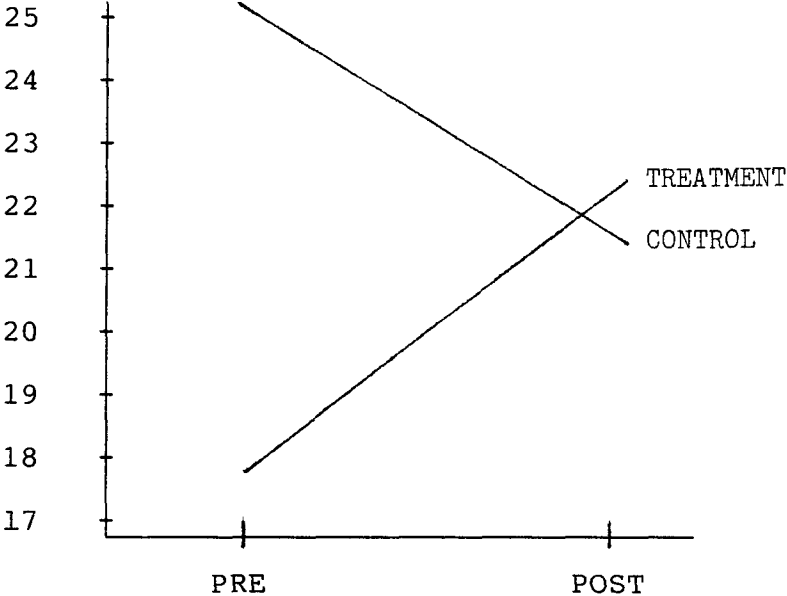


FIGURE 1
FEAPQ SCORES

range test showed that the pretreatment experimental group score was significantly higher than the post treatment experimental group score. Control group scores were not different from pre- to post treatment. (See Figure 2).

The Consumer Satisfaction Questionnaire was completed at the end of the 6 week treatment program by the experimental group parents. The mean and standard deviation on the CSQ were 27.875 and 4.58, respectively.

Follow-up data could not be obtained because of the difficulty experienced in trying to remain in contact with this population for extended periods of time. For example, after the six-week treatment program was completed, it was difficult to reach all the waiting list control group parents and collect the post treatment questionnaires and weight measurements for their children. Even so, the data was collected, but all of the control group parents did not agree to a treatment group at that time. Information concerning the utility and advantages of longitudinal data was explained, but obtaining the data was impossible. By the end of six months, some of the families (both treatment and control) were no longer eligible for WIC services, while other families had moved.

DISCUSSION

Parent's Group Questionnaire Results

The results of this study seem to suggest a number of findings with regard to this research. First of all,

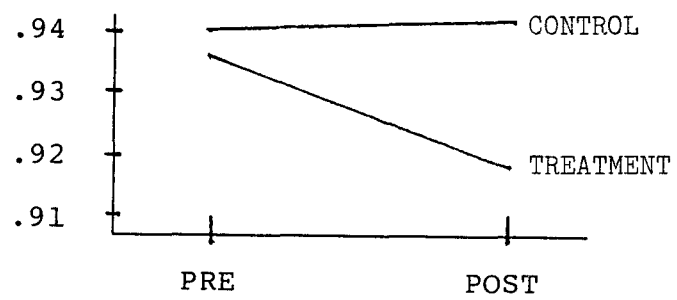


FIGURE 2

% OVERWEIGHT

the pretreatment scores on the paper-and-pencil measure for both groups seem to support a self-selection process. That is, parents from both groups appear to have made a choice about participating or not participating in the treatment program and responded on the questionnaire in conjunction with that choice. This also offers a reasonable explanation concerning the initial group differences. It appears that the experimental group presented with more of a need for treatment so they would be included in the group as opposed to being placed on a waiting list. The parents (subsequent treatment or waiting list control group members) had no way of knowing which group they would be assigned to, since after filling out the pretest measure, all parents were given a choice of being in the treatment program or being placed on a waiting list. The parents who made the choice to participate in the treatment program appeared to be interested in discovering more adaptive strategies to address a major concern of theirs - their child's obesity. In part, teaching and relying on parents as change agents in the treatment of their child's obesity is finding some support in the research (Israel, Stolmaker, & Andrian, 1985). It is of interest to note that this particular study seemed to have parents who were concerned, and sought this treatment program in response to that concern.

The control group parents seem to have responded for the opposite reason - they did not choose to be in the treat-

ment program. They did not seem concerned about their child's weight problems and did not feel they needed training in general child management skills. Further, they did not seem to feel that they had difficulty with behaviors that are associated with weight loss or eating habits. This additional information is helpful in that before a broad based program were to be developed for preschool-age children and parents, it must be clear that parents are supportive of and agree to change agents.

The post treatment scores on the paper-and-pencil measure increased significantly for the treatment group and that might be a reflection of the parents' learning and practicing control in other wise perceived uncontrollable situations (their child's eating behavior, nutritional habits, and physical activity). As the feelings of confidence and competence grew, the parents were more able to implement change with some success and this created motivation for them to continue. These results seem to support the basic notion that teaching parents behavioral, nutritional, and exercise information helps to increase their awareness of the factors influencing their child's weight (Epstein, Wing, Koeske, Andrasik, & Ossip, 1981; Israel, Stolmaker, & Andrian, 1985). In addition to providing the treatment group training and practice in these areas, feedback and discussion were encouraged. All of this seems to have led to the significantly higher post treatment scores. Unlike the treatment group

scores, the post treatment scores for the control group decreased and might reflect their apparent unwillingness to participate in any treatment program. Though the pretest scores for the control group appear to imply behaviors related with weight control and maintenance, this behavior did not seem to be translated into change for their children.

Children's Group Weight Measurement Results

The weight for both the experimental and control children's group remained essentially unchanged. What is interesting to note is that there was a decrease in the percent overweight for the children's treatment group. This might be accounted for in a couple of ways.

First of all, the treatment group children were older than the control group children, and given the course of physical development, children in the treatment group might have been experiencing a growth spurt in terms of height. Therefore, the differences in age, and the growth might have caused the percentage overweight figure to drop although no weight loss was experienced. In point of fact, both groups showed slight increases in weight, but only the treatment group children increased in height.

Another explanation that might serve to report on these results is that the treatment group children and parents were focused on eating habits, nutritional information and physical activity. The children involved in the treatment program were significantly aware of their parent's involvement

and attention. The value of having parents' involved in the treatment program was augmented by teaching and training them directly with regard to their role as parent and change agent. This has been supported by others who have discovered that attention to parental behaviors as they influence children's weight and weight loss efforts is the direction for treatment (Brownell, Kelman, & Stunkard, 1983; Epstein, Wing, Koeske, Andrasik, & Ossip, 1981; Israel, Stolmaker, & Andrian, 1985).

In addition to the children and parent's attention and focus directed toward these treatment concerns, both groups also actively participated in certain activities. The children's treatment group had the opportunity to participate in certain physical activities every week. The parent group was, at the same time, being encouraged to increase their own activity time with their children and one weekly session was spent on discovering and developing physical activities that the families could participate in with little or no monetary expenditure. All of this might have served as motivation to the treatment group parents and children and resulted in increased observation to and involvement in these activities. This response, in addition to, active intervention and attention by the treatment team might have combined to offer the treatment group children and parents a viable direction for change.

Consumer Satisfaction Questionnaire Results

On the Consumer Satisfaction Questionnaire (CSQ), most of the treatment group parents responded very positively to the experience of the treatment program and services they received (highest possible score=32; mean for the treatment group=27.875). Feedback and comments received generally followed a desire for more parental involvement, interaction with and participation in the children's treatment group. They suggested that this would have been particularly helpful when they were learning better child management skills and sought to practice their newly acquired skills with their children. Should this kind of treatment program be implemented again, it might be kept in mind that some parents anticipate and look forward to participating in all aspects of treatment, their own and their child's'.

CONCLUSION

Although this study seems to mirror other research results with respect to addressing issues of obesity vis-à-vis behavioral procedures and parental involvement (Epstein, Wing, Woodall, Penner, Kress & Koeske, 1985; Israel, Stolmaker, & Andrian, 1985), there are some further comments to be made about this project. First of all, this study seems to serve as an example of the difficulty in trying to reach a low-income population and, additionally, gain a commitment from them. The group seemed wary of any kind of intervention even if they would benefit from that intervention. Further,

they seemed to be a very transient population. Since commitment for this population is difficult to obtain, it may be profitable for future projects to have more handouts and information available to assist in getting that initial commitment. Secondly, the results were modest and although modest results were likely the only realistic results, this might be an indicator of other treatment concerns that were not being expressed. For example, in the treatment group, many of the parents were overly sensitive to their child's weight difficulties because of their own weight difficulties. Even so, modest results were realistic given the amount of treatment time in comparison to obesity and its history of resistance to treatment. Lastly, the small population size and other restrictions with regard to choosing the population, limits the generalizability of the results. If part of this study had not chosen to deal with a difficult-to-reach population, perhaps the results would be more generalizable. For example, it seems plausible to conceive of a project that might have been easily implemented in the school system. What is worthy of note is that the results of this study appear to be in a positive direction for this kind of preventive treatment program and one that can serve as a model to answer some of these questions with this population.

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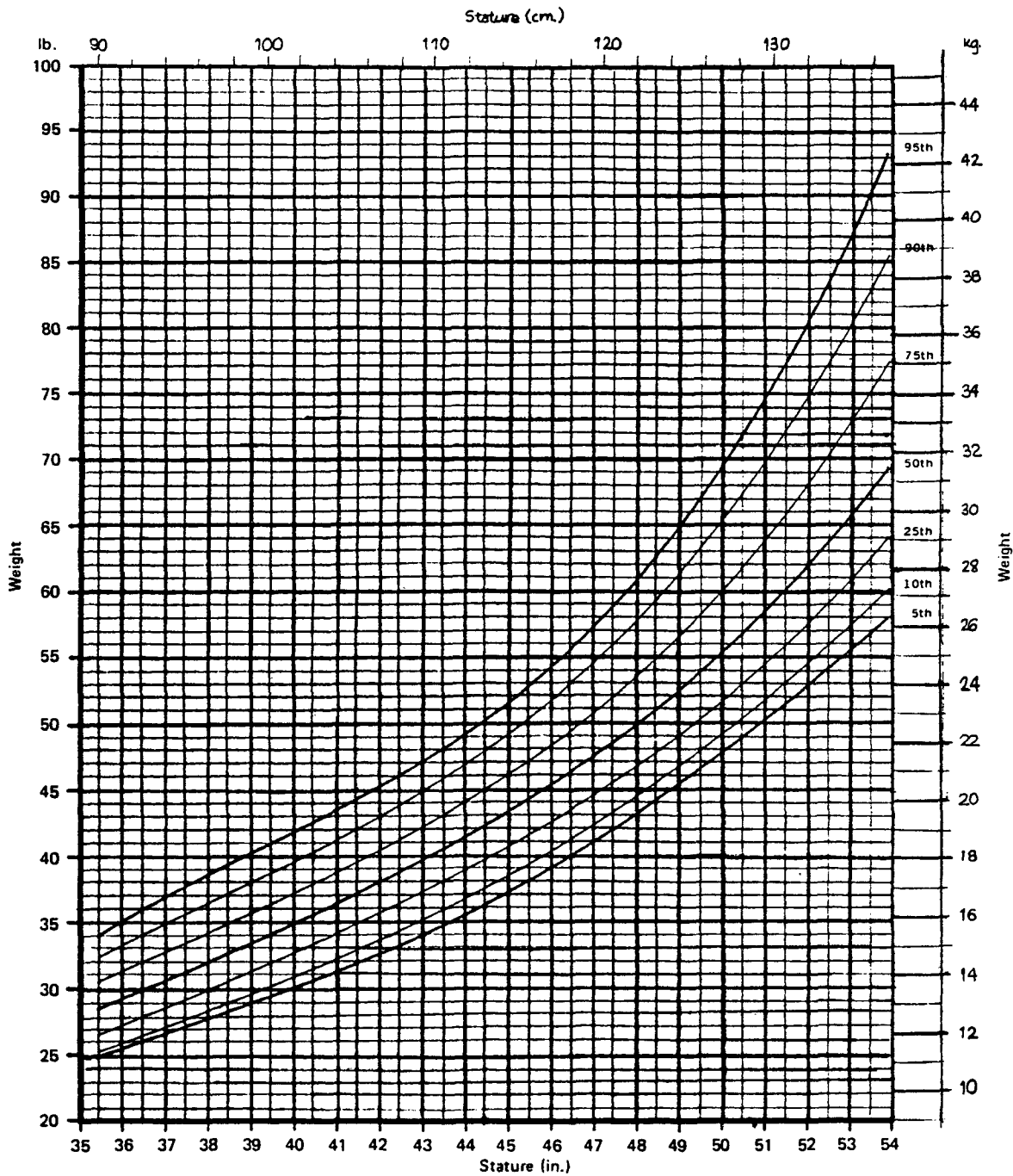
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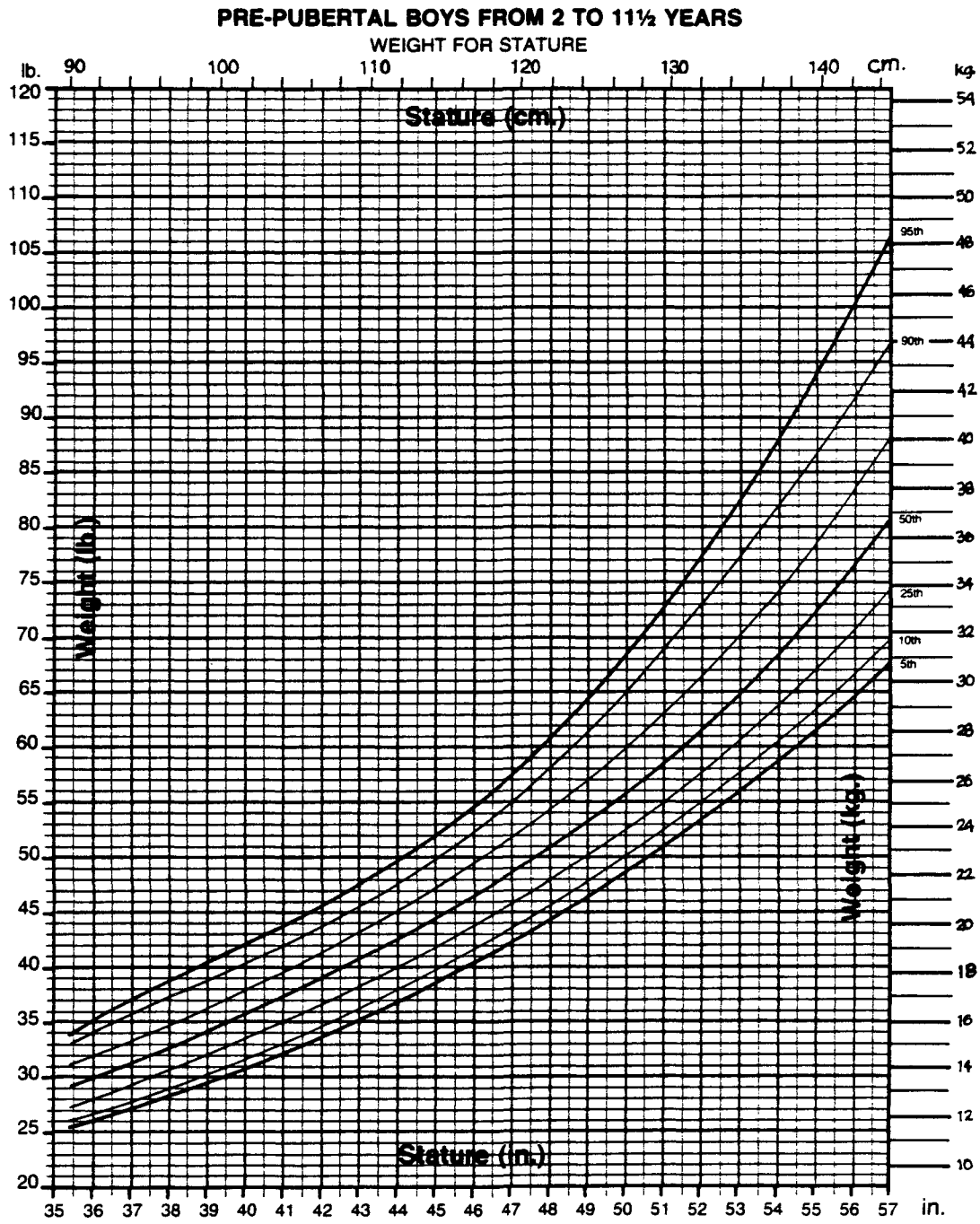
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APPENDIX A

PRE-PUBERTAL GIRLS FROM 2 TO 10 YEARS WEIGHT FOR STATURE





APPENDIX B

CODE _____

DATE _____

We are interested in your family's typical eating habits and activity patterns. Please check below whether the patterns described are "always," "frequently," "sometimes," or "never" true of your family.

	ALWAYS	FREQUENTLY	SOME-TIMES	NEVER
1. Our family eats together.	_____	_____	_____	_____
2. We tend to eat meals quickly.	_____	_____	_____	_____
3. Our children have a nutritious snack.	_____	_____	_____	_____
4. Snack food (candies, cookies, etc.) is available in our home.	_____	_____	_____	_____
5. Our family is fairly inactive.	_____	_____	_____	_____
6. We tend to like high-calorie snacks.	_____	_____	_____	_____
7. Our family uses a lot of salt.	_____	_____	_____	_____
8. We know what our children eat when they're away from home.	_____	_____	_____	_____
9. Eating while watching TV is a favorite activity in our home.	_____	_____	_____	_____
10. Our meals are relaxed.	_____	_____	_____	_____
11. We tend to give in to our children's demands for foods that are not nutritious.	_____	_____	_____	_____
12. We must urge our children to finish their meals.	_____	_____	_____	_____
13. We have serving dishes on our table during our meals.	_____	_____	_____	_____
14. We use certain foods for rewards for good behavior.	_____	_____	_____	_____
15. Our family tends to overeat.	_____	_____	_____	_____
16. Our children are expected to finish whatever's on their plates.	_____	_____	_____	_____
17. We tend to use a lot of sugar in our home.	_____	_____	_____	_____

APPENDIX C

THE CLIENT SATISFACTION QUESTIONNAIRE (CSO)

Please help us improve our program by answering some questions about the services you have received. We are interested in your honest opinions, whether they are positive or negative. Please answer all of the questions. We also welcome your comments and suggestions. Thank you very much, we appreciate your help.

CIRCLE YOUR ANSWER

1. How would you rate the quality of service you received?

4	3	2	1
Excellent	Good	Fair	Poor

2. Did you get the kind of service you wanted?

1	2	3	4
No definitely not	No not really	Yes generally	Yes definitely

3. To what extent has our program met your needs?

4	3	2	1
Almost all of my needs have been met	Most of my needs have been met	Only a few of my needs have been met	None of my needs have been met

4. If a friend were in need of similar help, would you recommend our program to him/her?

1	2	3	4
No definitely not	No I don't think so	Yes I think so	Yes definitely

5. How satisfied are you with the amount of help you received?

1	2	3	4
Quite dissatisfied	Indifferent or mildly dissatisfied	Mostly satisfied	Very satisfied

6. Have the services you received helped you to deal more effectively with your problems?

4	3	2	1
Yes they helped a great deal	Yes they helped somewhat	No they really didn't help	No they seemed to make things worse

7. In an overall, general sense, how satisfied are you with the service you received?

4	3	2	1
Very satisfied	Mostly satisfied	Indifferent or mildly dissatisfied	Quite dissatisfied

8. If you were to seek help again, would you come back to our program?

1	2	3	4
No definitely not	No I don't think so	Yes I think so	Yes definitely

WRITE COMMENTS BELOW

APPENDIX D

WEEK I

- GOALS AND OBJECTIVES -
- 1) To introduce family to group
 - 2) To explain overview of program
 - A. setup - mechanics
 - B. group focus
 - 3) Establish ^A assessment, ^B planning, ^C evaluation
 - A. group goal set
 - B. assessment by individual family
 - C. input for desired change
 - D. effective alternatives/skills to achieve change
 - E. evaluation of change
 - 4) Assessment of family eating patterns, behaviors and habits.
 - 5) With regard to this goal
 - A. families desired changes
 - B. alternatives/suggestions for change
 - C. methods; skills to accomplish change
 - D. evaluation

ACTIVITIES - PARENT GROUP

Questions to consider:

1. Copy of page 3 and 4 from D'Augelli and Smiciklas-Wright manual.
2. Discussion.
3. Fill out Family Eating & Activity Patterns.
4. Set family goal; look for group similarity/consensus with regard to goal.
5. Work on skills to accomplish goal/change.
6. Questions - discussion.
7. Pick a group "partner".

Introduction

Overview - and Parent/Child split.

PARENT GROUP

Explanation of Assessment, Planning, Evaluation concept - set group goal, i.e., to monitor eating and activity patterns and to alter those were desired.

Completion of Assession - setting specific family goal as it relates to eating patterns, behavior or habits; use vignettes from D'Augelli/Smiciklas-Wright to practice skills/methods to accomplish change.

Role play practice skills: questions - discussion.

Pick a group "partner"; someone to contact during the week. Contact for support.

CHILDREN GROUP - FOCUS ON EATING HABITS

Introduction of Chef Combo and Molly Mouth Puppets, or any 2 puppets - they will be used for the six weeks to help with activities.

- 1) Learn the sit-down-to-eat song.
- 2) Emphasis for this week.
- 3) Learn colors and what they might feel? What's a happy color? Make a finger puppet with their happy color on.
- 4) Draw a picture of how they look.
 "Mirror, mirror
 Look at me
 Who do I see?
 Draw me."
- 5) Food and tell create awareness of the variety of food.
- 6) Animal Activities - pick favorite animal and all move like that.

The ABC's of eating alphabet letter connected to food; what do we eat? When? How does that food taste, touch, smell? "Chef Combo" cinnamon toast story.

WEEK II - Evaluate Week I & II

- GOALS - 1) To assess family activity patterns, behaviors, habits.
 2) Look at and discuss activity information.
 3) Discuss and consider plans for change.
 4) Plan for moderate increases in activity patterns, behaviors, habits.

ACTIVITIES - PARENT GROUP

Complete Assessment Tool Discussion

Plan Guide.
 Suggestions for change.

Evaluation Tool for Week II
 Discussion
 Repeat Modeling
 Reinforcement
 Roleplaying
 as tools for learning skills
 For activity patterns.

Practice with vignettes.
 Particular attention to family activities
 Questions - discussion
 Support partners plan for activity during week.

CHILDREN'S GROUP - FOCUS ON ACTIVITIES

1. Repeat of song
 Learn new song about food that they (kids) make up.
 Use finger puppets (?)
2. ABC's of eating
 Learn about food being eaten different ways.
3. Focus on angry/mad/**upset feeling/color**
 Make an upset finger puppet
4. Look at self portrait
 Talk about self-worth
5. Giddy-up-go
 To create awareness of food providing energy
6. Animal Activities
 Move like favorite animal of this week & Week I
 Learn Hi-Dee-Ho
 food and exercise for health

WEEK III - Evaluate Week I

- GOALS AND OBJECTIVES -
- 1) To plan long-term eating patterns, behaviors, habits for family.
 - 2) To look at nutritional information.
 - 3) Assess family patterns, behaviors, habits.
 - 4) Planning a change in nutritional habits.

ACTIVITIES - PARENT GROUP

Complete Assessment Tool from D'Augelli/Smiciklas-Wright
Discussion

Use of Planning Guide
Use of Evaluation Tool for Week I
Discussion

Concept of Modeling
Reinforcement explained
Skills developed/practiced for eating patterns

Use of vignettes for practice
Role playing, modeling, reinforcement skills
Questions - discussion

CHILDREN'S GROUP - FOCUS ON NUTRITION

1. Puppets to sing song
2. The ABC's of eating
Looking at textures of food
Focus on same foods
3. Focus on a sad feeling/color
Make a sad colored finger puppet
4. Look at self-portrait
Talk about self-only
5. Name that food to help children associate food and food value
6. Pick another favorite animal
More like that and one last week

WEEK IV. - Evaluate Week II & III

- GOALS -
- 1) To assess environmental variables that affect food and eating patterns, behaviors, habits.
 - 2) To assess outcomes of environmental variables, i.e., family members money; living situations.
 - 3) Discuss realistic plans for change.
 - 4) Planning Guide.

ACTIVITIES - PARENT GROUP

Complete Assessment Tool
Discussion

Planning Guide
Suggestions for change

Evaluation Tool for Week III
Discussion
Review of group goal
Review of modeling, reinforcement, role playing as they involve family eating and activity goals, i.e., snacks

Practice with vignettes
Particular attention to environmental variables
Questions - discussion

CHILDREN'S GROUP - FOCUS ON ENVIRONMENT & EATING

1. Review Song 1
Review Song 2
2. ABC's of Eating
Food comes in different forms
3. Focus on a loved feeling/color
Make a loved finger puppet
4. Look at self-portrait
Talk about self and others in the house, environment; sharing, supporting, living with others
5. Food & Tell
Review/repeat of Week I
6. Animal Activities - Week I - IV
Hi Dee Ho

WEEK V - Evaluate Week III & IV

- GOALS -
- 1) To assess environmental variables that affect activity patterns, behaviors and habits.
 - 2) To assess outcomes of environmental variables, i.e., illness, injury, money, lack of space/opportunity
 - 3) Discuss plans for change.
 - 4) Planning Guide

ACTIVITIES - PARENT GROUP

Complete Assessment Tool
Discussion

Planning Guide
Suggestions for change

Evaluation Tool for Week IV
Discussion
Review of modeling, reinforcement roleplaying as they involve activities.

Practice with vignettes
Particular attention to environmental variables
Questions - discussion

CHILDREN'S GROUP - FOCUS ON ENVIRONMENT & EATING

1. Song 1
Song 2
2. ABC's of Eating
Identifying food by characteristics learned:
 - taste
 - touch
 - smell
 - texture
 - form
3. Focus on bad/low feeling/color
Make a low finger puppet
4. Look at self-portrait
Concentrate on self-awareness
How do I look?
5. Name that food
Review/repeat of Week II
6. Animal activities - favorite animal Week I-IV
Hi-Dee-Ho
When can we be active?
Where can we be active?
With whom can we play?

WEEK VI - Evaluation IV & V

PARENT GROUP GOALS AND ACTIVITIES

1. To assess positive consequences of eating and activity habit change for family members; fill out Assessment Tool.
2. Continued training in
reinforcing)
modeling); change; use vignettes
roleplaying)
3. Review of planning guide, i.e., realistic manageable changes
4. Ongoing use of evaluation tool
5. Opportunity to use group partner as a source of support in future.
6. Review of 5 weeks work -
 - a) nutritional information
 - b) eating habits & plans for change
 - c) activity habits & plans for change
 - d) environmental variables & how they affect change in both area b & c.
7. Assessment of this group goal
Evaluation of group treatment

CHILDREN'S GROUP

Review of groups weekly activities - Weeks I - V.

1. Song 1
Song 2
2. ABC's of Eating
3. Feeling/Color Puppets
4. Draw new self-portrait
Mirror - mirror
5. Giddy-up-Go
Review of Week II
6. Animal Activity
Week I - IV
Hi-Dee-Ho