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Parents Are Key Players in the Prevention and Treatment of Weight-related Problems

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There is growing agreement among experts that an obesogenic environment, which encourage excess food intake and idealizes thinness, plays a crucial role in the epidemic of childhood obesity and eating disorders. Because parents provide a child's contextual environment, they should be considered key players in interventions aimed at preventing or treating weight-related problems. Parenting style and feeding style are crucial factors in fostering healthy lifestyle and awareness of internal hunger and satiety cues and de-emphasizing thinness. Effective interventions for prevention and treatment of weight-related problems should be approached from a health-centered rather than a weight-centered perspective, with the parents as central agents of change. This paper reviews the environmental risk factors and parents' role in the prevention and treatment of children's weight-related problems.

Key words: weight-related problems, parental role

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Introduction

The recent increase in the prevalence of overweight, obesity, and eating disorders among children in western societies, and the related social, psychological, medical, and economic impact, calls for novel treatment and prevention approaches. These approaches should integrate messages that address the broad spectrum of eating-related problems.[1] There is growing agreement among experts that environment plays a crucial role in this epidemic.[2,3] The lifestyles and diets of children in developed countries are changing rapidly in response to the social and cultural climate and the availability of a range of foods. This obesogenic environment idealizes thinness and stigmatizes fatness, but paradoxically encourages excess food intake and quick approaches to weight loss.[4] Children and adolescents may be exposed to conflicting messages regarding food and weight issues from family members and from society.[1]

Considerable evidence suggests that the eating behaviors of children and adolescents are shaped by parental feeding behaviors.[5] Highly controlling and restrictive parental feeding strategies contribute to positive energy balance and higher body mass index (BMI, kg/m^2) by interfering with children's ability to self-regulate energy intake.[5,6] Studies have also shown that parents who think their children are overweight or at risk of becoming overweight are more likely to practice restrictive feeding behaviors, whereas those who think their children are too thin are more likely to attempt to increase their intake.[7]

There is evidence to suggest that the family is becoming a more democratic unit and that children out-maneuver parents because they have access to their own money.[8] To further illustrate the complexity of eating behavior, parental eating behavior and weight status also appear to influence children's eating behaviors.[9]

Parents play a critical role in helping children to become well-adjusted adults; this includes minimizing problem behaviors and maximizing self-efficacy and emotional, personal, and cognitive development.[5,10] This paper reviews the obesogenic factors in the modern environment and the role parents may play in modifying these factors in children's weight-related problems.

Obesogenic Factors in the Modern Lifestyle

Recent changes in the social and economic environment encourage the consumption of excess energy and discourage energy expenditure.[11,12]

Increased Energy Intake

Research has identified links between children's weight status and total energy intake, percentage of intake as fat, and fat preference.[13–15] The availability of a wide variety of high-energy foods, the low cost of energy-dense

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foods,[16] the rise in consumption of fast food,[17] and the increase in portion sizes (in part because consumers value a greater quantity of food for a lower price)[18,19] all contribute to excess energy intake. Evidence suggests that children who have access to money are spending more on sweet snack items than ever before.[8,20]

Reduction in Physical Activity

A lower level of physical activity and habitual exercise among children is associated with higher BMI.[21] A recent study with a sample of 7216 Canadian children, aged 7 to 11 found that both organized and unorganized sport and physical activity are negatively associated with being overweight (10–24% reduced risk) or obese (23–43% reduced risk).[22] Western culture places a premium on convenience: the car is preferred to walking, the elevator to stairs, and the remote control to manual adjustment, all of which are associated with reduction in physical activity.

Data suggest a remarkable downward trend in the prevalence of participation in physical activity as children grow older. Kimm et al. followed 1213 black girls and 1166 white girls enrolled in the National Heart, Lung, and Blood Institute Growth and Health Study from the ages of 9 or 10 to the ages of 18 or 19 years. They reported a 100% decline for black girls and a 64% decline for white girls in leisure-time physical activity on the basis of metabolic equivalents (MET) ($P < 0.001$) from baseline until year 10 of the study. A higher BMI was associated with greater decline in activity among girls of both races ($P < 0.05$).[23]

Increase in Sedentary Behaviors

Sedentary behaviors such as computer use and television viewing may place children at risk of overweight. Among children, a greater number of hours spent in sedentary pursuits has been associated with a higher prevalence of overweight.[24,25] In a longitudinal study, 106 children were enrolled during preschool years (mean age 4.0 years) and followed into early adolescence (mean age 11.1 years). Television watching was an independent predictor of the change in the child's BMI, triceps, and sum of five skinfolds throughout childhood. Its effect was only slightly attenuated by controlling for the baseline body fat and level of physical activity. The mean sum of skinfold thickness of those children who watched 3.0 hours or more of television per day was 1.5 times greater than for those who watched less than 1.75 hours per day ($P = 0.007$). Furthermore, the adverse effect of television viewing was worse for those children who were also more sedentary in other ways or had a higher-fat diet.[26] The effects of sedentary habits are independent of levels of physical activity, however, which suggests that the influence of TV viewing and computer games on children's weight status is not simply the result of the displacement of physical activity.[27]

Television viewing may provide a context for simultaneous snack consumption and inactivity, thus fostering overweight. TV viewing of more than 1 hour per day has been associated with a high consumption of fast foods, sweets, chips, and pizza, and lower consumption of fruits and vegetables.[28] A recent survey exploring the eating habits and attitudes of 551 schoolchildren aged 7 to 16 in Germany found that watching television while eating increased with age.[29]

Among 173 non-Hispanic white girls aged 5 to 9, Francis et al. found that in both overweight and non-overweight families, girls who watched more television consumed more snacks in front of the television. In families in which neither parent was overweight, television viewing was the only significant predictor of girls' increase in BMI. In families in which one or both parents were overweight, girls who watched more television snacked more frequently, and girls who snacked more frequently had higher intakes of fat from energy-dense snacks, which predicted their increase in BMI.[30]

Media Messages

Television viewing exposes the stimulus-sensitive child to food advertisements. Viewing food advertisements while watching TV often leads children to request such foods, and thus appears to influence children's dietary patterns.[31] Moreover, television viewing exposes children to thin images, which are frequently idealized by the immature individual who is preoccupied with identity issues.[32,33] Groesz et al. evaluated the effect of experimental manipulations of the thin beauty ideal as portrayed in the mass media on female body image in a meta-analysis of 25 studies. Body image was significantly more negative after viewing thin media images than after viewing images of average-sized models, plus-size models, or inanimate objects. This effect was stronger for participants less than 19 years of age and for participants who were vulnerable to adopting the thinness schema.[34]

Thinness Culture and Dieting

The media possesses power to influence young people; it often bombards them with images of abnormally thin models, suggesting that they represent the ideal. Brief exposure to thin-ideal media images has been shown to have a small but consistent negative impact on women and girls' body dissatisfaction. A sample of 80 adolescents (mean age = 17.2 years) completed measures of body dissatisfaction and drive for thinness, two years after they had viewed either 20 appearance-related television commercials (containing female thin ideals) or 20 non-appearance commercials. For girls, initial body dissatisfaction changed in response to viewing appearance

commercials at time 1, predicted subsequent body dissatisfaction and drive for thinness 2 years later, above and beyond the variance predicted by initial body dissatisfaction. Similar results were observed for boys' drive for thinness but not for body dissatisfaction.[35]

Cross-sectional survey in 548 5th- through 12th-grade girls in a working-class suburb in the northeastern United States found that 69% of the girls reported that magazine pictures influence their idea of the perfect body shape, and 47% reported wanting to lose weight because of magazine pictures. There was a positive linear association between the frequency of reading women's magazines and the prevalence of having dieted to lose weight because of a magazine article, initiating an exercise program because of a magazine article, wanting to lose weight because of pictures in magazines, and feeling that pictures in magazines influence their idea of the perfect body shape.[33]

Appearance comparison mediates the effects of family and media influences on body dissatisfaction, which in turn influences restrictive and bulimic behaviors.[36] Cultural pressure on women to be thin is an important predisposing factor for the development of eating disorders. Overweight girls have more concerns about weight, shape, and eating and more often resort to dietary restraint.[37] Early dieting itself may constitute risky behavior for the development of obesity and even eating disorders.[38] Restrained eating and caloric restriction might give rise to eating binges through the weakening of satiety cues and the heightened attractiveness of food in restrained eaters.[39–41]

Role of Parents in the Etiology and Prevention of Weight-related Problems

Parents can influence their children's dietary practices, physical activity, sedentary habits, and body satisfaction by controlling availability and accessibility of foods, meal structure, food socialization practices, and food-related parenting style. Knowledge of nutrition and modeling of behaviors and attitudes are also influential.[42]

Parental Knowledge

Mothers' nutritional knowledge and concern for disease prevention was found to be associated positively with children's fruit and vegetable consumption[43] and negatively with children's total energy and fat intake.[44]

Food Selection

Parents and child-care providers may provide opportunities for children to appreciate a variety of nutritious foods by providing exposure early in childhood. Parents control most of the foods entering their home, the methods of food preparation therein, and the selection of where the family goes out to eat.[45,46] Children's food preferences are learned through repeated exposure to foods.[47–49] Children choose to eat foods that are served most often and prefer what has been available and acceptable in the parental household. Availability and accessibility accounted for 35% of the variability in fruit, juice, and vegetable consumption among elementary school girls, but not in elementary school boys,[50] and only for 11% of the variability in children's fruit and vegetable consumption among children as a group.[51] The physiologic conditioning of flavor preferences for foods high in energy density may have the greatest effect on children's liking of energy-dense foods among families in which those foods are most available and accessible.[52]

An association was found between the eating habits of children and those of their parents. Parent and child dietary habits and preferences are likely to reflect environmental factors. Oliveria and colleagues reported that children whose parents ate diets high in saturated fat also ate diets high in saturated fats themselves. Parents tend to have foods in the home that they like and eat, and with repeated opportunities to eat these foods; young children include many of them in their diets.[53]

Home Eating Patterns

Home eating patterns have changed such that a greater proportion of income is spent on foods prepared outside the home.[54] Eating away from home is becoming more common, and fast food restaurant use in particular is growing even more rapidly.[55] In the early years of life parents are considered to be the primary socialization agent and the overseer for a child's interaction with the larger environment. Children and adolescent are preparing more meals and shopping for groceries more often than they did in the past, often because more mothers are working and simply do not have time for food preparation.[56] Efforts by adults to limit children's intake of sweet snacks and drinks are being undermined by earlier and earlier influences in the child's life and by the child's access to money.[8]

Meal Structure

Family meals appear to play an important role in promoting positive dietary intake among children. Whereas in the past eating for children has generally been within a social context, such as the family meal, eating alone is now more common. Research suggests that when parents provide companionship at mealtime, establish a positive atmosphere, and model appropriate food-related behaviors, their children tend to have improved dietary quality.[57] Increased frequency of a family dinner among 9- to 14-year-old children was associated with healthful dietary patterns.[58] Swarr and Richards reported that spending more time with parents was one of the factors that resulted in the healthiest eating attitudes.[59]

The transition from childhood to adolescence is

marked by greater freedom in decision-making and behavior. Adolescents with greater independence are less likely to eat meals with their parents and then to eat more meals with friends or on their own. Unfortunately, the result of this independence is often that unhealthy nutritional patterns abound, including skipping meals and increased consumption of junk food.[60,61]

Parental presence at the evening meal is positively associated with adolescents' higher consumption of fruits, vegetables, and dairy foods. Frequency of family meals was positively associated with intake of fruits, vegetables, grains, and calcium-rich foods and negatively associated with soft drink consumption.[62] Positive associations were also seen between frequency of family meals and intake of energy, protein (percentage of total calories), calcium, iron, folate, fiber, and vitamins A, C, E, and B_6.[62] The fact that children and adolescents are increasingly eating meals without parents suggests that parents may be allowing adolescents to assert too much independence in this area.

Parent As a Role Model

It was hypothesized that one of the pathways by which parents shape children's habits is by serving as role models.[63] Early studies suggested that preschool children were more likely to eat foods if they saw an adult model eat the foods.[64] The mothers' own foods behaviors with regard to time of eating, types of food liked or disliked, and place where eating occurred in the home were correlated with the child's food behaviors.[65]

Fisher et al. found that parents who consumed more fruits and vegetables had daughters who consumed more fruits and vegetables.[66] Some studies suggested children resemble their parents in food preferences[67–69] and even in food neophobia.[70] Other studies have shown low family resemblance in food preference[71] and attitudes towards foods.[72] Unfortunately, research to date has not isolated the impact of modeling as an independent factor in child's behavior.

Parents' Impact on Child's Physical Activity Level

Parents also play an important role in determining children's physical activity. Moore et al. reported that parents who are more physically active are more likely to have children who are physically active.[73] In a report by Kalakanis et al., a hierarchic regression model showed that parent activity improved the prediction of obese children's activity levels and the number of bouts of moderate-to-vigorous physical activity but not duration.[74] Parental activity may be more highly correlated with frequency of exercise among girls than among boys.[75]

The amount of time parents spent watching television was positively related to the amount of time spent watching television in Hispanic boys but negatively related in black boys. Parents' concern about their own fitness was negatively related to television time in white girls but positively related in black girls.[76] A comprehensive review of correlates of physical activity found that parent support, sibling physical activity, direct help from parents, and opportunities to exercise were associated with children's physical activity.[27]

Physical activity levels in children who are still reliant on the family will likely differ according to available family resources. Studies have reported that parents transporting children to activities after school, paying fees for lessons, or providing membership in community sports organizations are all correlated with higher physical activity levels in youth.[77] In a study of 477 girls and 423 boys, McGuire et al. found that parents' reported encouragement was positively related to physical activity in white and black boys and in white and black girls.[76]

In a recent study, Schmitz et al. found in 3798 seventh-grade students that for boys, having a mother in the home and having at least one parent working was associated with greater levels of physical activity.[78] By contrast, Trost et al. assessed the level of physical activity of 245 3- to 5-year-old boys and girls and their parents using the observation system for recording activity in preschools and real-time accelerometry. They found that despite a strong association between childhood overweight status and parental obesity, no significant differences were observed for the hypothesized parental influences on physical activity behavior.[79]

Parenting Food Practice

Parents try to foster a healthy lifestyle using different strategies for controlling their child's food intake. Those with undesirable eating habits tend to press their children to behave differently.[66] Parents with lower fruit and vegetable intake tend to report using greater pressure in child feeding. Pressure in child feeding, in turn, was negatively related to their fruit and vegetable intake and positively related to their fat intake.[66] Parents who are overweight, who have problems controlling their own food intake, or who are concerned about their children's risk for overweight may adopt controlling child-feeding practices in an attempt to prevent overweight in their children.[49] Unfortunately, research suggests that these parental control attempts may interact with genetic predispositions to promote the development of problematic eating styles and childhood overweight.[52]

Birch and Fisher[52] have suggested that parental insensitivity and/or unresponsiveness to feeding cues from the child might be counterproductive to the development of the child's ability to self-regulate and may have adverse consequences for the development of child's food preferences and intake. This behavior may

discourage children from making choices based on individual food cues and may cause the child to focus on cues other than feelings of hunger and satiety.[49] Fisher and Birch found that young children's weight for height predicted the degree to which mothers reported restricting their child's intake of snack foods.[80] Spruijt-Metz et al. evaluated the relationship between mothers' child-feeding practices and children's adiposity in a sample of 74 white and 46 African American children aged 11 years. The pressure to eat and concern for child's weight explained 15% of the variance in total fat mass in both African American and white boys and girls after correction for total lean mass and energy intake ($P < 0.001$).[7]

By contrast to the described studies, which observed the influence of parental control over children's intake in middle-class white families, Robinson et al. found that this information could not be generalized to 8- to 9-year-olds in families with diverse socioeconomic and ethnic backgrounds. Counter to the hypothesis, parental control over children's intake was inversely associated with overweight in girls, as measured by BMI. This weak relationship became only marginally significant when controlling for parents' perceptions of their own weight, level of household education, and children's age. No relationship between parental control of children's intake and their children's degree of overweight was found in boys.[81]

Satter[82] suggested health care providers and parents should rely on what she refers to as a "trust" paradigm instead of the current "control" paradigm for understanding childhood obesity. She suggests a division of responsibility between parent and child in which it is the parents' responsibility to supply the child with a healthful array of foods and a supportive eating context, and it is the child's responsibility to decide when and how much to eat.

In this model it is assumed that children will eat the amount they need and that it is normal for some children to be overweight. That some children do become overweight is assumed to occur because they make "errors in energy balance." The preferred feeding style fosters healthy lifestyle and awareness of internal hunger and knowledge cues and de-emphasizes thinness and weight reduction. An authoritative feeding style is one in which adults determine which foods are offered, and children determine the amount eaten.[83] This feeding style is believed to result in optimum outcomes in children due partially to the development of self-control.[49] Whatever parenting practice is applied, early parental influences can have long-term influences on a person's dietary practices. Young adult eating habits such as eating all food only from a plate, finishing all served food, using food as an incentive or threat, eating dessert, and eating regularly scheduled meals were related to the same feeding practices reportedly used by their parents during their childhood.[84] Young adults' consideration of nutrition when selecting food was related to the memory of their parents talking about nutrition during childhood.[84]

General Parenting Style

Parenting style may influence the effectiveness of parental child-feeding practices. Parenting style, according to Baumrind,[85] captures three important elements of parenting and revolves around issues of control.

Parental responsiveness. "The extent to which parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children's special needs and demands."[85–88]

Parental demandingness. "The claims parents make on children to become integrated into the family whole, by their maturity demands, supervision, disciplinary efforts and willingness to confront the child who disobeys."[85–88]

Psychological control. "Control attempts that intrude into the psychological and emotional development of the child through use of parenting practices such as guilt induction, withdrawal of love, or shaming."[89]

According to Baumrind,[85] there are three distinct, prototypical patterns of parenting (which differ on the above mentioned three domains): permissive, authoritarian, and authoritative. Permissive parents are more responsive than they are demanding. They essentially allow children to make their own decisions and regulate their own activities. These parents set boundaries more similar to friendship with their children, with minimal punishment when things go wrong. Permissive parenting is linked to lower levels of self-regulatory skills.[90,91] Authoritarian parents "tend to be highly directive with their children and value unquestioning obedience in their exercise of authority over their children."[85–88] Authoritative parents provide "clear and firm direction for their children, but disciplinary clarity is moderated by warmth, reason, flexibility, and verbal give-and-take. They are assertive, but not intrusive and restrictive."[85–88]

To these three parenting style, Maccoby and Martin[91] have suggested the fourth typical style, the disengaged parent, who is low in both responsiveness and demandingness, low in affective expression, and low in control.

In general, an authoritative parenting style emphasizing both "responsiveness and demandingness," attempting to balance their conformity demands with their respect for their children's individuality. Previous work suggests this style appears superior in terms of fostering social adjustment, academic achievement, and good self-regulatory processes in children.[92,93]

Only few studies have been published on the relationship between parenting style and eating and activity behaviors.[94] Kremers et al. reported that fruit consump-

tion and fruit-specific cognitions (attitude, subjective norm, social support, social modeling, self-efficacy, and intention towards the Dutch guideline of eating at least two pieces of fruit per day) were most favorable among 643 adolescents with an average age of 16.5, who were being raised with an authoritative parenting style.[95] The authors suggested that when parental control in child-feeding practices is applied in a general atmosphere of involvement and parental warmth, it might lead to positive effects, whereas the same parental practice may lead to adverse effects in an authoritarian atmosphere. This study underlines the importance of studying parental practices in the context of general parental strategies of expressing warmth and emotional support, and using clear, bi-directional communication.[95]

Schmitz et al. found among 3798 seventh grade students that girls who report that their mothers are responsive to their needs and rights, while setting clear expectations for behaviors (authoritative parenting style), in general, reported more physical activity and lower levels of sedentary behavior. The relationship between parenting style and boys' activity levels were more difficult to interpret.[78]

Studies that intervene with the parents but do not simultaneously treat the children have clearly shown that when treatment is able to change parental behavior toward children in specified ways, the behavior of children changes correspondingly.[96,97] The direct relationship between parenting style and children's eating and activity habits have not been tested, however, and weight-related interventions did not assess the change in parenting style.

Induction of Dieting and Child's Body Dissatisfaction

The family also has an important impact on the child's body dissatisfaction. Birch and Fisher found that mothers' dietary restraint and perceptions of their daughters' risk of overweight predicted maternal child-feeding practices, which in turn predicted daughters' eating patterns and relative weight.[52] Others suggested that mothers who are dissatisfied with their own bodies communicate this to their daughters, which may cause the daughter's own body dissatisfaction.[98,99]

The Framingham Children's Study suggests that parents who display high levels of disinhibited eating (especially when coupled with high dietary restraint) may foster the development of excess body fat in their children. The authors suggested that this association might be mediated by direct parental role modeling of unhealthy eating behaviors, or by other indirect (and probably subconscious) behavioral consequences such as the suppression of the child's innate regulation of dietary intake.[100] Field et al. found that both girls and boys who reported that their thinness/lack of fat was important to their father were more likely than their peers to become constant dieters. Peer, parent, and media have great influence on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys.[101]

Problematic Patterns of Communication

Research findings suggest that the families of individuals with anorexia nervosa exhibit problematic patterns of communication. Families are viewed as overprotective, enmeshed, more rigid, and less openly communicative.[102–104] Several researchers have noted a familial emphasis on achievement and success, a strong emphasis on appearance and weight, and less encouragement of self-expression and autonomy (often by one parent), all of which tend to lead to compliance and the underdevelopment of self-reliance in the anorexic child.[105] Others have observed that the anorexic patient is unable to achieve the developmental tasks of separating from the family and creating an individuated identity due to family disturbances in communication, roles, regulation of emotion, inappropriate boundaries, and low levels of expression of affect.[106,107]

Targeting Parents in Weight-related Problems

The current knowledge regarding the obesogenic factors in a child's environment and the key role that parents play in the child's exposure to factors that foster energy imbalance suggest that suitable interventions should address parental knowledge and practices. Parents were observed to be involved in different ways in weight-related interventions.[108]

Targeting Parents and Children in Family-based Interventions for Weight Reduction

Family interventions are implemented based on the premise that parental support, family functioning, and home environment are important determinants of treatment outcomes. In the late 1970s, Epstein et al.[109] conducted a randomized study that compared the weight changes of 66 children (aged 6–12) and mothers who participated in a family-based behavior programs. The program targeted one child and one parent in the family and was designed to assist in the modification of child and parent eating and activity behaviors by teaching the targeted participants self-monitoring, reducing calories, and increasing exercise, as well as induction of environmental changes and reinforcement for desired behavior change. The treatment group received nutrition and diet education along with behavior modification education (e.g., self-monitoring, social reinforcement, modifying the environment), while the control group received only nutrition and diet education. All treatment group met weekly for 8 weeks and approximately once per month for 6 months. The statistical results showed that nutrition

education combined with behavior modification was associated with a superior relative weight change (more than 2 times, $P < 0.05$) when compared to nutrition education alone.

Epstein et al.[110] replicated this study in children aged 5 to 8 years in order to evaluate the effectiveness of the family-based behavioral intervention for younger children. The results of the second experiment were similar to those described above. The continued superior weight loss of the behavior modification and nutrition education intervention at 5 and 10 years follow-up suggests that a behavior modification approach to weight loss may help families to attain longer-lasting changes.[111–114] Treatment effects were better for obese children than for their obese parents, and after a 10-year follow-up, approximately one-third of the children did not meet the criteria for obesity, whereas <5% of their parents demonstrated this degree of success.[114] In 5- and 10-year follow-up reports of family-based behavioral treatments, predictors of child success included self-monitoring, changes in eating behaviors, praise of child, and change in parents' overweight status. More success was associated with supportive, interactive families demonstrating parental skills aimed at the child's development of responsibility and positive self-image.[112,113]

Graves et al.[115] suggested that problem solving is necessary for successful weight reduction treatment. In their study, 40 families with obese children aged 6 to 12 years were assigned randomly to a behavioral group, a problem-solving group, or an instruction-only group. Each of the parent/child groups met for eight weekly-60-min sessions. Children in the problem-solving group lost significantly more weight and decreased their percent overweight than either behavioral or instruction-only subjects ($P < 0.05$). However, at 8-month follow-up, Duffy and Spence[116] found no additional benefit of cognitive therapy techniques such as targeting monitoring of negative thoughts, restructuring of maladaptive thoughts, problem solving, self-reinforcement, and behavioral techniques. They treated14 families with 7- to 10-year-old children and 13 families with 10- to 13-year-old children for 8 weeks. The effects of adding family therapy to the conventional treatment (dietary counseling and medical checkups) on treatment of obesity in 10- and 11-year-old children were tested by Flodmark et al.[117] At the end of the 14 months, neither group showed decreases in obesity, but children in the family therapy group had significantly smaller increases in BMI than children in the conventional dietary counseling group. This difference disappeared 1 year later.

Family-based interventions that emphasize reasonable and coordinated goals for both the parent and child and that incorporate positive reinforcement and tools to facilitate behavior change and increase problem solving capabilities appear most likely to succeed.

Targeting Parents Exclusively in the Treatment of Childhood Obesity

A health-centered (rather than a weight-centered) study of obese Israeli children aged 6 to 11 in which parents were targeted as the primary mediators of change, showed greater weight loss, increased behavioral changes, and better retention of achievements.[118,119] Parents served both as a source of authority and as a role model for their children, providing an environment with less obesogenic factors and more self-regulation and healthy practice. Lerner[120] suggested that children often resist change and express this resistance by rebellion and acting appositively when subjected to demands for change. Perhaps it is not surprising, therefore, that omitting children from direct participation in the interventions would be associated with improved results in the short and long term. Omitting the obese child from the direct intervention was associated with greater weight loss and higher consumption of healthy foods compared with interventions in which children were the main agents of change.[118] Mean reduction in percent overweight was greater at all follow-up points in children of the parent-only group compared with those in the children-only group ($P < 0.05$).[119] Seven years after the program ended, mean reduction in children's overweight was 29% in the parent-only group and 20.2% in the child-only group ($P < 0.05$). At this point 60% of the children in the parent-only group were nonobese while only 31% of the children in the child-only group were nonobese. Symptoms of eating disorders (binging and purging) were reported by 6.6% of the girls from the child-only group and by none of the children from the parent-only group.[121]

Approaching parents exclusively shifts the focus of the group from weight issues to parenting issues, which is decisive in light of current evidence suggesting that the family is becoming a more democratic unit[8] and that parents can play a key role in child weight-related behaviors.

Targeting Parents in Eating Disorders

In the treatment of eating disorders, family therapy was found beneficial especially to young, non-chronic patients with anorexia nervosa[122,123] and bulimia nervosa.[124] By contrast to family therapy that mainly focuses on familial interpersonal functioning, parenting counseling addresses the needs of parents with an eating-disordered child and provides emotional support and a safe context within which parents can explore their vulnerability and doubts and regain their mastery of parenting.[125] The child's inner experience is often an untold mystery for parents and, as a result, it may be hard

for them to know how to support and advise their child. Some programs address parents' needs in education and skills, attend to parental self-blame, and promote creation of a positive, constructive coalition against the problem.[126] Many groups have been established, primarily to assist and support parents of eating disorder sufferers, and to help them support their child while engaging in their own process of change. However, there are insufficient data on such groups or counseling.[127] Parental criticism of the child can lead to early dropout of treatment or poor outcome in treatment and should be addressed.[128]

Implications for Practice

Environmental factors, family characteristics, and parenting style all contribute to a child's behaviors, perceptions, self-esteem, and body image. In light of this contribution, effective interventions for prevention and treatment of childhood weight-related problems should be approached from a health-centered rather than weight-centered perspective.

Because parents provide the child's contextual environment, they should be viewed as key players and central agents of change in the prevention and treatment of weight-related problems, and therefore provided with appropriate training. Parents should understand the interplay of genetic, environmental, and familial influences in disease expression. Identifying the obesogenic agents in the environment and parental behaviors that influence childhood weight problems is critical for the development of effective prevention and treatment programs.

Effective advice includes recommendations on how to work around constraints imposed on parents. Promoting a child's ability to self-regulate intake and to develop sensitivity to internal needs is crucial. Parents should not restrict the amount of food a child eats during meals. Parents should rather serve as a source of authority by regulating the quality and pattern of the food environment, by setting limits when appropriate, and by modeling behaviors and attitudes. Development of parenting skills to facilitate healthy attitudes, interactions, and lifestyle around eating, activity, and body image are also important. Adults are responsible for creating a nurturing environment. Environment can foster self-esteem by helping children recognize their own worth, cultural food practices, and family tradition; by teaching body satisfaction and a positive body image; and by modeling qualities that facilitate health-promoting behaviors.

Future Directions for Research

Parents' role in weight-related problems should be further explored, especially in light of current suggestions to integrate intervention aimed at the prevention of obesity and eating disorders.[1] The challenge lies in approaching weight-related problems with consistent messages, making complex interventions simple and successful. Studies in which parents are the main agents of change should be repeated.

Intervention studies are needed to gain insight into the suitability of the authoritative parenting concept, particularly its suitability for different ages and cultures. The influence of ethnic background on parenting practices and children's weight-related problems also merits further study.

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