

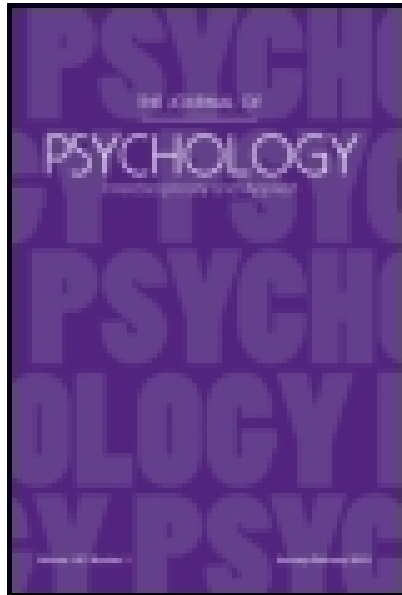
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Parental Support and Adolescent Motivation for Dieting: The Self-Determination Theory Perspective

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ABSTRACT. This article focuses on parents' role in overweight adolescents' motivation to diet and successful weight loss. The study employed Self-Determination Theory (SDT) as the theoretical framework (Deci & Ryan, 2000, 2011). Ninety-nine participants (ages 20–30) who had been overweight during adolescence according to their Body Mass Index (BMI mean = 25, *SD* = 1.6), completed retrospective questionnaires about their motivation to diet and their parents' behavior in the context of dieting. Findings from a structural equation modeling analysis suggested that participants who viewed their parents' as more need-supportive demonstrated more autonomous motivation to diet, which, in turn, contributed to their successful weight loss. The findings highlight the importance of parental support of adolescents' psychological needs in the quality of their motivation to diet. This is an important insight for parents and professionals who aim to encourage more constructive parent involvement in adolescents' dieting and well-being.

Keywords: adolescents' dieting, autonomous motivation, parents' support, Self-Determination Theory

OVERWEIGHT AND OBESE CHILDREN AND ADOLESCENTS, those with age and gender body mass index at the 85th percentile or greater (Barlow, 2007), are at risk for developing many co-morbidities seen in overweight adults. Fasting serum glucose, insulin, and triglyceride levels and the prevalence of impaired glucose tolerance and systolic hypertension increase significantly as children become

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overweight (Daniels, 2006; McLeod-Dannelly, Kicklighter, Hopkins, & Rivers, 2005; Reilly, 2006). Swallen, Reither, Haas, and Meier (2005) found that adolescents who are overweight or obese have significantly worse self-reported health and are more likely to have a functional limitation. Moreover, emotional and social difficulties become more extreme as overweight children approach adolescence. Being overweight in adolescence is associated with increased risk for negative psychosocial outcomes such as impaired quality of life (Merten, Wickrama, & Williams, 2008; Zeller, Roehrig, Modi, Daniels, & Inge, 2006), decreased self-concept and body image, and impairments in social functioning (Janssen, Craig, Boyce, & Pickett, 2004). Burrows and Cooper (2005) found that overweight girls report more negative self-esteem related to their athletic competence, physical appearance, and global self-worth and also exhibited more symptoms of depression than boys did. Janssen et al. found that overweight and obese school-aged children are more likely to be the victims and perpetrators of bullying behaviors than their normal-weight peers. Furthermore, overweight youth face an increased risk of being overweight adults (Guo et al., 2000; McLeod-Dannelly et al., 2005). Accordingly, parents and nutrition educators' must cooperate to prevent children from being overweight (Lent, Hill, Dollahite, Wolfe, & Dickin, 2012).

Increasing evidence for a strong relationship between parenting practices and children's eating habits, physical activity, and weight levels demonstrates that promotion of effective parenting is critical to prevent overweight and bad health habits (Lent et al., 2012; Rhee, 2008; Ventura & Birch, 2008). Effective parenting is particularly important in adolescence, when relationships with parents become more complex (Richardson, Paxton, & Thomson, 2009). In research on parent role in dieting of children and adolescents, "effective parenting" mostly highlighted parents' specific dietary, physical activity, and health behaviors." These behaviors include avoiding sweets and high-fat foods at home or employing behavior-based treatments, encouraging children to be physically active while reducing their television and video game time, and providing parental modeling of healthful eating and physical activity practices (Lent et al.; McLeod-Dannelly et al., 2005; Ritchie, Welk, Styne, Gerstein, & Crawford, 2005; Spear et al., 2007). Only a few studies have investigated parents' effective supportive psychological behaviors in the context of their children's diets (Golan, Fainaru, & Weizman, 1998). Therefore, less is known about the way parents' psychological support promotes adolescents' motivation and successful weight loss. Accordingly, parents' psychological support to overweight adolescents was the focus of this study.

We employed Self-Determination Theory (Deci & Ryan, 1985, 2000, 2011) to conceptualize and investigate how individuals experienced their parents' psychological support during adolescence and how parental support affected their motivation and success in weight loss. Self-determination theory is a humanistic theory that suggests that the quality of motivation that people adopt for activities

depends on the environmental support of their basic psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 2011). The relationship between a need-supporting environment and autonomous motivation is well established in such domains as learning, work, and medical settings. Using data collected from 99 young adults, we asked whether this relationship is also visible with parents and adolescents in the context of diet. We asked whether adolescents who retrospectively viewed their parents as supportive of their psychological needs, developed more autonomous motivation, and whether this motivation resulted in more successful weight loss.

Incorporating findings from SDT may enrich our understanding of the role that parent-adolescent relationships and parental support play in adolescents' dieting (Lent et al., 2012; E. M. Young, Fors, & Hayes, 2004). As most previous research has concerned parents' daily practical behaviors (such as restricting unhealthy foods or helping children to count calories), this study is unique in its investigation of the role of parental psychological support. With a well-established motivational perspective that provides a comprehensive theoretical and psychological mechanism, this study suggests specific, "easy-to-apply" parental behaviors that contribute to theory and practice in the dieting literature.

The Self-Determination Theory Perspective on Motivation

SDT (Deci & Ryan, 1985, 2000, 2011; Ryan & Deci, 2000) concerns the development and functioning of personality within social contexts. The theory specifies a continuum of motivational orientations for activities, ranging from extrinsic/controlled regulation (engagement through coercion, to avoid punishment, or to achieve a reward) to intrinsic/autonomous motivation (engagement through pleasure, interest, enjoyment, or acceptance of the value of the activity as one's own). Research results are quite consistent in suggesting that the more autonomous the motivation—or the locus of regulation of action—the higher the quality of engagement and the well-being of the person. Findings from many studies have highlighted that when people engage in tasks for autonomous reasons—because they enjoy it, find it interesting, or view it as important and valuable—they engage more meaningfully, regulate their behavior, achieve better results, and manifest high well-being. When people engage in tasks for less autonomous reasons—to please others, to demonstrate superior ability, to avoid feeling incapable, or to avoid punishment—they demonstrate lower self-regulation, lower achievement, and lower well-being (Grolnick, Ryan, & Deci, 1991; Vansteenkiste, Simons, Braet, Bachman, & Deci, 2007).

According to self-determination theory, there are three basic human psychological needs—autonomy, relatedness, and competence—that, when satisfied, enhance autonomous motivation and promote internalization of initially extrinsic behaviors (Ryan & Deci, 2000). Satisfaction of these three needs depends on environmental support (Katz, Kaplan, & Guetta, 2010; Katz, Kaplan, & Buzukashvili,

2011; Reeve & Jang, 2006; Vansteenkiste et al., 2007). Unlike earlier need-based theories that viewed motivation as determined by an individual's personality or developmental processes, SDT considers motivation as dependent on context and emphasizes environment's role in motivational change (Ryan & Deci). Hence, the theory assigns a primary role to significant others (teachers and parents) in supporting children's psychological needs, which contributes to their internal motivation for activities. Behaviors that support autonomy include showing understanding for the other person's perspective, providing a relevant rationale for the task, offering choices, and legitimizing negative affect and criticism. Behaviors that support competence include setting optimally challenging goals, helping to plan the work, and providing informative and non-comparative feedback. Behaviors that support relatedness include acceptance and empathy and minimizing social comparisons and competition (Reeve, 2009). According to the SDT, all of these behaviors, when conducted by parents in the context of their adolescence dieting, would impact the adolescents' motivation to be involved in the diet process and would eventually be projected in the success of diet.

The relationship between a need-supporting environment and autonomous motivation has been found within various domains. For example, in schools, teachers who supported their students' needs for autonomy, competence, and relatedness helped their students develop more adoptive types of motivation, better well-being, and higher class participation (Black & Deci, 2000; Mouratidis, Vansteenkiste, Sideridis, & Lens, 2011; Niemiec & Ryan, 2009). Reeve and Tseng (2011) found that students' levels of cortisol (a biological indicator of stress) increased when they were exposed to unsupportive teachers. In a cross-sectional study on the transition from elementary to middle school, Katz et al. (2010) found that a decline in students' adaptive motivation to homework was partly the result of a decline in teachers' support of students' psychological needs. In the home, Katz et al. (2011) found that students whose parents supported the three needs while helping with homework were more autonomously motivated to do their homework. In the workplace, studies showed the positive impact of a need-satisfying working environment on employees' motivation, attitudes, efficacy, and productivity (Ilardi, Leone, Kasser, & Ryan, 1993; Deci et al., 2001). Although these findings were obtained in educational or workplace settings, the universal perspective of the self-determination theory suggests that the effect of a supportive environment on the type of motivation people adopt is obtained across cultures and domains. Research using SDT in medical settings, for example, has revealed that when medical professionals are attuned to their patients' basic psychological needs, patients' motivation for medical treatment and their self-regulation for their care are improved (Williams, Deci, & Ryan, 1998). SDT has demonstrated the importance of doctors', nutritionists', or peers' support of the three basic psychological needs to successful weight loss (Ryan, Patrick, Deci, & Williams, 2008; Williams, Grow, Freedman, Ryan, & Deci, 1996). However, this is the first study

to investigate the role of parents' support of psychological needs in adolescents' motivation for dieting.

Motivation to Diet According to Self-Determination Theory

Motivation plays a major part in the success of treatments and interventions that aim to improve individuals' health and well-being (Schroeder, 2007). The effectiveness of most medical lifestyle-change treatments depends on individuals' willingness to adopt self-care behaviors and to avoid harmful behaviors (Katz, Assor, & Kanat-Maymon, 2008, 2011). Dieting is unlikely to succeed if dieters do not have the motivation to engage and regulate their own behaviors. Accordingly, studies on dieting from the SDT perspective have indicated an association between autonomous reasons for dieting and more successful outcomes (Vansteenkiste et al., 2007; Williams et al., 1996). SDT suggests that autonomous motivation involves deep understanding and internalization of the rationale and value of dieting (Katz & Assor, 2007; Ryan et al., 2008; Williams, Cox, Hedberg, & Deci, 2000; Williams et al., 1998). Autonomous motivation's role in dieting success is important to all people (Jacobs, Hagggar, Streukens, De-Bourdeaudhuij, & Claes, 2011), but especially to adolescents, who confront complex social challenges with parents and peers as they struggle to develop self-awareness and construct their identities (Videon & Manning, 2003).

Parents' Support for Dieting

Research suggests that parents have a strong effect on their children's weight. Parental weight problems are the first risk factor for children's developing weight problems (Kumanyika, 1993). In addition to genetic components, research has focused on parents' behaviors, such as shopping habits and food rituals, and has indicated that changes in parents' behaviors and diets affect their adolescents' behaviors, BMIs, and weights (Golan et al., 1998; Jacobs et al., 2011; Oude-Luttikhuis et al., 2009; Schroeder, 2007; Wilfley et al., 2007; E. M. Young et al., 2004; K. M. Young, Northern, Lister, Drummond, & O'Brien, 2007). For example, Golan et al. examined changes in eating-related behaviors in children treated with a family-based approach, in which the parents were the exclusive agents of change. The researchers found that when parents are the agents of change, the reduction of exposure to food stimuli and changes in eating habits (eating while standing, watching TV, reading, or doing homework; eating following stress; and eating between meals) were better than when the child was responsible for his or her own weight loss. Research suggests that the effect of parents' behavior on children's weight can take place through different mechanisms; for example, through modeling positive and negative diet behaviors (Golan et al.), or through exposing children to alternative foods.

Other research has taken a different perspective and investigated the role of parenting styles on children's dieting and weight. For example, several studies have

suggested that an authoritative parental style—a style that combines a high degree of responsiveness with a high degree of expectation from the parent—constitutes a protective factor in adolescents' weight, dietary intake, and physical exercise, whereas a neglectful parental style constitutes a risk factor for such outcomes (Kremers, Burg, de Vries, & Engels, 2003; Van der Horst et al., 2007).

Although no SDT research has been conducted regarding diet in adolescence, this theory provides a comprehensive framework for previous findings about the role of parental behavior in adolescents' dieting success. Specifically, SDT suggests that adolescents with parents who support their psychological needs will have an internalized motivation for dieting and successful weight loss. SDT's theoretical psychological mechanism for the role of the parent-adolescent relationship in successful weight loss was the reason it was chosen as a framework for this study. A need-supportive behavior in the context of diet is conducted when parents support autonomy by demonstrating understanding for the adolescents' perspective (for example, showing empathy to the difficulty in avoiding junk food in social contexts), providing a relevant rationale for dieting (for example, explaining the consequences of being overweight or the potential benefits of losing weight), offering choices (such as enabling choices of foods or "breaks" in the process), and legitimizing negative affect and criticism. Behaviors that support competence include setting optimally challenging goals (such as mutual decisions on long- and short-term goals), helping to plan the process, and providing informative and non-comparative feedback (for example, emphasizing the adolescents' personal achievements rather than comparing them to siblings/friends etc.). Behaviors that support relatedness include acceptance (such as showing unconditional love and affection) (Reeve, 2009).

This study employed a retrospective methodology in which young adults were asked to recount their parents' behavior during adolescence, as well as their motivation for and successful weight loss at that time. Accordingly we formulated the following hypotheses:

Hypothesis 1: A positive association will be found between adolescents' views of their parents as need-supportive and adolescents' autonomous motivation to diet.

Hypothesis 2: A negative association will be found between adolescents' views of their parents as need-supportive and adolescents' controlled motivation to diet.

Hypothesis 3: A positive association will be found between adolescents' autonomous motivation and their success in weight loss.

Hypothesis 4: A model in which the view of parents as supportive of psychological needs leads to autonomous motivation for dieting, which in turn leads to successful weight loss, will fit the data best.

Method

Participants

Participants were 99 Jewish Israeli young adults, ages 20–30 (9 males and 90 females; mean age 25.5 years), who reported they were overweight during adolescence. This status was confirmed by calculating their Body Mass Index to be at the 85th percentile in the sex and age-specific BMI, according to the World Health Organization BMI tables (BMI range 23–28; mean 25, $SD = 1.6$). BMI was calculated according to participants' report of maximum weight as well as their height during that period of maximum weight (Barlow, 2007). The participants also reported being involved in a diet to lose weight at least once during adolescence, either under medical/nutrition consultation (47 participants) or not (52 participants). Eighty-four participants were single at the time of the study, 13 were married, and two were married with children. All participants had either a bachelors' degree or were university students at the time of the study. No differences were obtained in the pattern of response between the male and female participants. Therefore, we included both genders as one sample. The possible limitations of this gender discrepancy are outlined in the discussion section.

Participant Recruitment and Procedure

The institutional review board (IRB) of the Department of Education at Ben-Gurion University approved this study, and participants consented to participate. An advertisement inviting participants to complete questionnaires was published on the Ben-Gurion University Web site and posted at the university swimming pool and fitness room. The advertisement asked for volunteers who perceive themselves as having an overweight problem during adolescence to complete a questionnaire. The participants were asked to complete either an on-line or a hard-copy questionnaire. Most participants (76) completed on-line questionnaires located at a special university data collection site (<http://survey.bgu.co.il/>), while the rest answered a hard copy of the questionnaire. No differences were obtained in the pattern of response between those who completed the on-line version and those who completed hard copy or between the male and female participants. Participants were asked to refer to their adolescence years (ages 14–20), and specifically to the experience of dieting at that time.

Instruments

All the instruments were published scales modified for a dieting context.

Adolescents' motivation for dieting was assessed with two scales modified from Katz et al. (2011). Using a five-point Likert scale, ranging from 1 (not at all) to 5 (very much), participants indicated the extent to which their dieting was based on autonomous or controlled reasons. Factor analysis using maximum likelihood method with Varimax rotation supported the distinction between controlled and autonomous reasons for dieting (KMO 's measure = 0.79; cumulative sum of

squared loadings = 47.2%). Therefore, one scale assessed controlled reasons for dieting (10 items, such as “I dieted in order to avoid my parents’ negative attitude; I dieted so that my friends would not laugh at me”; Cronbach’s alpha = 0.91). The second scale assessed autonomous reasons for dieting (6 items, such as “I dieted in order to make a real change in my life; I dieted because I understood the medical consequences of being overweight”; Cronbach’s alpha = 0.73). A positive correlation between autonomous and controlled motivation was found ($r = .24, p < .01$). Such a positive correlation was found in other studies (Katz et al., 2011; Roth, Kanat-Maymon, Assor, & Kaplan, 2006). However, self-determination theory does not provide a ready explanation for such an occurrence. In all further analyses, we included participants’ “controlled motivation for dieting” as a covariate in order to control for its shared variance with the other variables.

Parents’ need-supportive behavior was assessed with one scale modified from Katz et al. (2011) by phrasing the items to focus on dieting. Using a five-point Likert scale, ranging from 1 (not at all) to 5 (very much), participants indicated the extent to which they perceived their parents’ as supporting their need for autonomy (“My parent talked to me about the importance of the diet to my life”), the need for relatedness (“My parent gave me the feeling that I was loved and appreciated even when I failed to diet”), and the need for competence (“My parent told me that s/he was sure I could do it”).

Factor analyses with Varimax and Oblimin rotations did not support the distinction between these dimensions with 38% squared loading for one factor solution (initial eigenvalue = 14.2). Therefore, as in previous studies (Katz et al., 2010, 2011), the items were combined into one variable of participants’ perceptions of parental need-supportive behavior (18 items; Cronbach’s alpha = 0.94). Higher scores on the scale indicated higher perceived need-supportive behavior by the parent.

Successful weight loss was assessed with two scales: weight loss percentage and weight loss duration as reported by the participants. The participants reported their ages and weights at the start and the end of their diets. This information enabled us to calculate the weight loss percentage. Participants reported the length of time (in months) that they maintained their lower weights.

Results

Descriptive Statistics and Correlations

The theoretical variables (adolescents’ autonomous motivation and adolescents’ controlled motivation) were calculated as the mean of the participants’ responses to the relevant items. Perceived parents’ need-supportive behavior was calculated as the mean of the participants’ responses to the relevant items about both parents’ behaviors. Table 1 presents the descriptive statistics of all variables and the zero-order correlation between all variables.

TABLE 1. Descriptive Statistics and Correlation Matrix of Study Variables

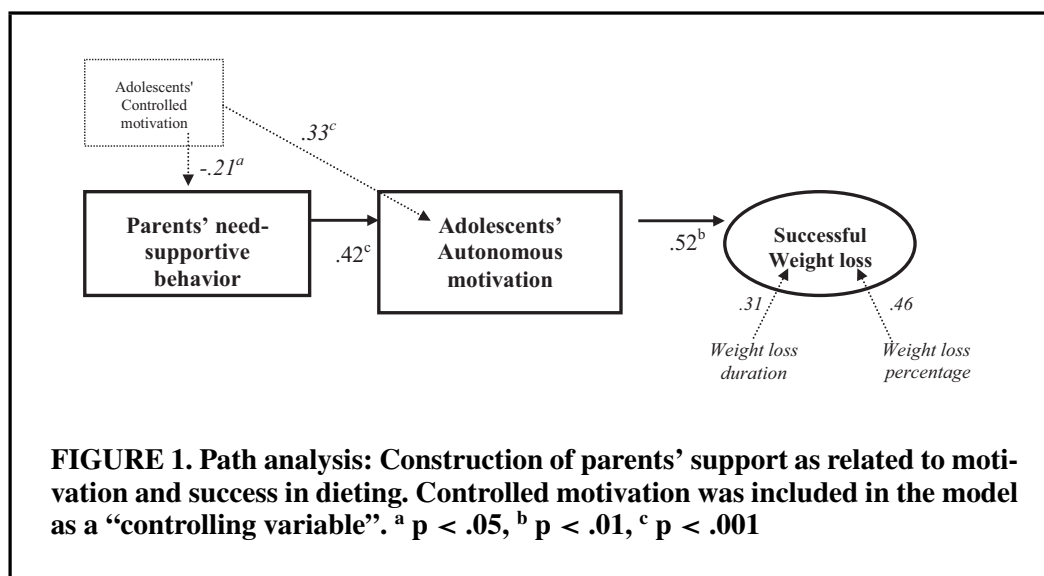
	1	2	3	4
1. Parent-support ^a $\alpha = .94$ <i>Mean (SD) = 3.38 (.79)</i> <i>Skewness = -.43</i> <i>Kurtosis = -.43</i>	—			
2. Auto-motivation ^b $\alpha = .73$ <i>Mean (SD) = 2.63 (.85)</i> <i>Skewness = .29</i> <i>Kurtosis = -.14</i>	.36***	—		
3. Cont-motivation ^c $\alpha = .91$ <i>Mean (SD) = 2.59 (.97)</i> <i>Skewness = .65</i> <i>Kurtosis = -.03</i>	-.19*	.24**	—	
4. WL-duration ^d <i>Mean (SD) = 11.39 (12.9)</i> <i>Skewness = 2.03</i> <i>Kurtosis = 4.57</i>	.01	.15	-.02	—
5. WL-percent ^e <i>Mean (SD) = 15.19 (8.97)</i> <i>Skewness = 1.37</i> <i>Kurtosis = 3.18</i>	.11	.28***	.21**	.26**

As presented in Table 1, the internal reliabilities (Cronbach, 1951) were satisfactory according to the rule of thumb for describing internal consistency (Kline, 2000). The theoretical variables were normally distributed, except for the outcome variables of weight-loss duration, and weight-loss percentage relative to initial body weight. Participants' responses on these variables were equally distributed along the continuum responses. Since the responses represent the actual weight loss and persistence, the data were not transformed.

As predicted (Hypothesis 1), the perceived parental need-supportive behaviors were positively associated with perceived autonomous motivation ($r = .36$, $p < .001$) and negatively associated with perceived controlled motivation for weight loss ($r = -.19$, $p < .05$) (Hypothesis 2). As predicted (Hypothesis 3), adolescents' autonomous motivation and their success in weight loss were positively associated.

Path Analysis

Hypothesis 4 suggests that the data would best fit a model in which the view of parents as being supportive of psychological needs leads to autonomous motivation



for dieting, which in turn leads to successful weight loss. In order to assess this hypothesis, we conducted a path analysis using AMOS7 (Arbuckle, 2006). Figure 1 presents findings from the tested model. The model included “perceived parental need-supportive behavior” as an exogenous variable, “autonomous motivation for dieting” as a mediating variable, and “successful weight loss”—a latent variable composed of the weight loss duration and weight loss percentage—as an outcome variable.

The model’s fit to the data was sound ($\chi^2 = 4.66$, $df = 4$, $p = ns$; NFI = .89; CFI = .98; RMSEA = .04). After controlling for controlled motivation for dieting, perceived parental need-supportive behavior was positively associated with perceived autonomous motivation for dieting ($\beta = .42$, $p < .001$), which, in turn, was positively associated with perceived successful weight loss ($\beta = .52$, $p < .01$). The results support the hypothesis that perceived parental need-supportive behavior leads to perceived autonomous motivation, and, in turn, successful weight loss.

Testing an Alternative Model

Although the analysis supported the hypotheses, the findings did not rule out the possibility that other models also may fit the data, perhaps even better. Thus, to provide further support for the hypothesized relationships, we compared the findings with those from an alternative model. An adolescent’s motivation type may elicit parental supportive behavior, or, in other words, parents may be more supportive of adolescents who are autonomously motivated in the first place. Therefore, we assessed the fitness of a model in which adolescents’ motivation type leads the parent to be more supportive, which, in turn, leads to weight-loss success. We wanted to assess whether a model based on this pattern of causality better fit

the data. In the model, autonomous motivation was entered as an exogenous variable leading to perceived parental need-supportive behaviors, which then led to successful weight loss. The alternative model did not fit the data well ($\chi^2 = 11.47$, $df = 4$, $p < .05$; NFI = .73; CFI = .73; RMSEA = .14), thereby providing additional support for the hypothesized relationships and suggesting that parental behavior leads to adolescents' behavior, not vice versa.

Discussion

The findings suggest that adolescents' views of their parents as supporting their needs at the time of a diet are significant to their motivation and successful weight loss. The findings corroborate the assumptions of the self-determination theory—support for psychological needs leads to autonomous motivation and success—which suggests that SDT is a useful theoretical framework for understanding the parents' role in adolescents' motivation to diet.

Hypotheses 1 and 2 posit that adolescents' views of their parents as need-supportive will be positively associated with adolescents' autonomous motivation to diet and negatively associated with adolescents' controlled motivation to diet. These hypotheses were both confirmed. The results suggest that perceived parental need-supportive behaviors are positively associated with perceived autonomous motivation and negatively associated with perceived controlled motivation for weight loss. Previous research among adults has suggested that dieters have more autonomous motivation and increased success when a significant other, such as a group facilitator, supports the dieter through interpersonal communication, frequent positive verbal reinforcement, deeper and more detailed explanations and rationale, and acknowledgment of difficulties (Jacobs et al., 2011; Vansteenkiste et al., 2007). The present study extends these understandings to the context of parental support of adolescents' dieting, implying that adolescents are more likely to adopt autonomous motivation when they perceive their parents support their psychological needs for autonomy, competence, and relatedness.

Hypothesis 3, which posited that adolescents' autonomous motivation would be positively associated with success in weight loss, was confirmed. Evidence from previous research on the effect of autonomous motivation on success in various domains suggests that students/workers/patients who are autonomously motivated perform better and more successfully at tasks, and experience more positive emotions and well-being (Deci & Ryan, 2011). Accumulated evidence from previous research on adults suggests that autonomous motivation for dieting is associated with increased dieting success (Jacobs et al., 2011). The present study extends that understanding to adolescents. Hence, adolescents' motivation for dieting should be the subject of particular attention (Ryan et al., 2008). In support of Hypothesis 4, our results suggest that the model that fit the data best is one in which perceived parental need-supportive behavior leads to perceived autonomous motivation and, in turn, successful weight loss.

Previous research has emphasized the role of parents in supporting healthy eating habits, especially during adolescence (Savage, Fisher, & Birch, 2007). Other studies have suggested that parental weight-related behaviors—such as parental dieting, encouragement for adolescents' dieting, and parental comments on their own weight—are putative risk factors for the development of weight-related concerns and behaviors in youth (Byely, Archibald, Graber, & Brooks-Gunn, 2000). Although a number of studies have emphasized parents' practical behaviors, the present study used a strong theoretical framework to highlight the central psychological role that parents play during this complex time. It is often difficult for teens to eat well. Socializing with friends, frequenting fast-food outlets, and snacking can lead to the consumption of excessive fat, sugar, and calories (Videon & Manning, 2003). Therefore, a home environment that supports the needs of a dieting adolescent is critical. The implication of these findings is that the parents' role extends beyond making practical decisions about the types of foods to buy or counting calories, to the deeper facets of the parent–adolescent relationship and to the psychological environment of dieting. Therefore, in order to provide a stronger support for the dieting adolescents, parents should not only adopt changes in their weight-related behaviors, but also adopt more need-supportive behaviors. These behaviors include showing empathy regarding the difficulty of avoiding junk food in social contexts, explaining the consequences of being overweight and the potential benefits of losing weight, offering choices, legitimizing negative affect and criticism, setting optimally challenging goals, providing informative and non-comparative feedback, and showing unconditional love and affection (Reeve, 2009).

The findings and support for the self-determination theory assumptions have practical implications. There is an increasing recognition of the psychological role of the home environment, especially the role of parents, in dieting success. Therefore, more interventions aim to provide better counseling to parents of dieting adolescents. Golan et al. (1998), as well as Golan and Crow (2004), noted that parent groups that included information about parental practices and styles led to children's more successful weight loss than groups that included only suggestions for the child's diet. The Collaboration for Health, Activity, and Nutrition in Children's Environments (CHANCE) from Lent et al. (2012) uses a socio-ecological approach to childhood obesity prevention that recognizes the importance of home and community to individual behaviors (French, Story, & Jeffery, 2001; Stokols, 1994). The CHANCE program includes a parent education curriculum that integrates nutrition, active play, and parenting practices to create supportive environments and develop skills to promote healthful habits. The incorporation of SDT understandings into such programs might contribute to their efficiency. Self-determination theory can provide guiding principles—such as the principle of need-supportive environments—that can integrate existing efforts at parent counseling into a comprehensive and coherent framework. For example, in addition to the practical recommendations about parental behaviors that support

children's dieting, programs should attend to the psychological support for the parents themselves, which in turn would enhance their own autonomous motivation to support their children's psychological needs. Therefore, the programs should include specific sessions that provide parents with strategies (support of parents' need for competence), allows them to express their feelings and share their own difficulties (support of parents' need for autonomy) and feel part of a group that encounters similar difficulties (support of parents' need for relatedness).

Limitations and Future Research

This study has several limitations of note. First, while the study supported the young adult participants' implicit assumptions about the role their relationships with their parents during adolescence had on their motivation and weight loss, their responses may reflect both their current state of well-being as well as their psychological experience during adolescence. The retrospective nature of their reporting may not necessarily reflect actual events or historical experiences. The validity and reliability of retrospective reports has been questioned (Lauritsen & Swicegood, 1997). However, support also exists for the use of retrospective data when investigating sensitive issues, such as adolescent sexual experiences (Durant & Carey, 2002; Jaccard, McDonald, Wan, Dittus, & Quinlan, 2002). These studies suggested that a person's current emotional condition may influence retrospective perception, but on the other hand, retrospective perceptions may be more accurate because the individual may develop a different perspective over time and be less affected by acute emotional stress regarding past events. Moreover, prospective methods are also questionable and have various limitations (Pintrich & Schunk, 2002). For example, Haines, Neumark-Sztainer, Hannan, and Robinson-O'Brien, (2008) found a considerable disagreement (21–30%) between parent and child prospective reports of parental weight-related behaviors. This result suggests that various other interfering variables may influence adolescents' reports and perceptions regarding parental behavior. Nevertheless, future studies should complement these retrospective findings by employing prospective methods to investigate adolescents' current experiences, motivation, and successful weight loss as a result of parental need-supportive behaviors.

In addition, the participants selected themselves into the group when declaring overweight in adolescence. This could cause a "self-selection bias," which means that that the sample is biased by nonprobability sampling. Moreover, this study relied on data collected through on-line surveys. Increasingly, studies have suggested that on-line data collection is as reliable as traditional pen-and-paper methods (Gosling, Vazire, Srivastava, & John, 2004). Moreover, this study's analysis showed no differences in the response pattern between the two methods. Yet, these results should be investigated further using various data collection and data analysis methods. Future studies should complement the current findings with data collected using such methods as semi-structured and open-ended interviews and journaling. These methods may expand our understanding of participants'

personal experience and provide a broader and more authentic picture the parental role in adolescents' dieting.

An additional noteworthy feature of this study is that most participants were female. Although this fact may reflect the current trend among in overweight adolescents who diet (Rosen & Gross, 1987), trends are changing (Croll, Neumark-Sztainer, Story, & Ireland 2002; (Diaz, Marshak, Montgomery, Rea, & Backman, 2009), and it is important to understand the effect of parental behaviors on male adolescents as well. Moreover, the difference between parent-child relationships in early and later phases of adolescence (Laursen, Coy, & Collins, 1998) was not considered as a variable in this study. Future studies should assess whether the parental psychological support affects weight-loss success differently in younger adolescents than in older ones.

A persistent question is what specific parental behaviors do adolescents perceive as need-supportive. More research is needed to better understand what makes some parents more supportive than others of adolescents' psychological needs. Similarly, research is needed to better understand why some adolescents consider certain behaviors as need supportive and others do not, and whether there are gender-related differences regarding the type of support required from the parents. Research on parental supportive behaviors in contexts other than dieting has suggested that the type of motivation parents have for involvement with their children is the strongest predictor of parents' need-supportive behavior (Katz et al., 2011). Findings also have suggested that parents who are able to match their own behavior to that of their children and to control their own dieting behaviors are more supportive and helpful to their children's dieting process (Sato et al., 2011). Future research should aim to understand the factors underlying parental behavior that adolescents perceive as need-supportive, although findings are likely to differ among various groups of parents and adolescents. Given that pediatric overweight results from an interaction between environmental and genetic factors, overweight adolescents are more likely to have overweight parents (Ritchie et al., 2005). Accordingly, an important question that should be further investigated is parents' own weight challenges and the effect that these challenges have on their behavior in the process of their children's diets. Rhee, DeLago, Arscott-Mills, Mehta, and Davis (2005) showed that parents' readiness to make changes for overweight children is higher in parents who believe that they themselves are overweight.

Conclusions

This study's results suggest that young adults who viewed their parents' as more need-supportive demonstrated more autonomous motivation to diet, which, in turn, contributed to their successful weight loss. This is an important insight for professionals who aim to encourage more constructive parent involvement with adolescents' well-being and dieting, for parents themselves, and for researchers

interested in identifying meaningful parental characteristics that promote the family's well-being. To promote autonomous motivation for dieting among adolescents, parents should consider their interactions with their children not only in terms of the behaviors they emphasize, but also the messages they send that support psychological needs.

AUTHOR NOTES

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