

Treatment of Morbid Obesity in Low-income Adolescents: Effects of Parental Self-monitoring

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Abstract

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Objective: This study examined the extent to which consistency of self-monitoring by participants and their parents was related to weight control over an initial period of 3 months within the context of a treatment program for morbidly obese low-income minority adolescents.

Research Methods and Procedures: Eighty-three obese adolescents (mean age, 13.0 years; 51% boys; 92% African American; mean BMI, 43.0 kg/m²; mean BMI *z*-score, 6.0) and at least one parent participated in a long-term treatment program that included a very-low-fat dietary focus, weekly group cognitive-behavior therapy, monthly nutrition education classes, a 12-week physical therapy class, and medical monitoring.

Results: Participants who self-monitored on the majority of days compared with those who did not self-monitor at all or who self-monitored infrequently attended more sessions and generally lost more weight over the first 3 months. Although parents signed behavioral contracts committing to self-monitor their own eating and exercising over the first month, only 12% did so. Nonetheless, participants whose parents self-monitored were much more likely to self-monitor consistently and lose weight during the first 3 months.

Discussion: These results indicate that self-monitoring is a cornerstone of successful weight control even for morbidly obese low-income minority adolescents; targeting consistency of self-monitoring among these high-risk weight controllers and their parents should be just as important as it is for more affluent and less overweight adolescents.

Key words: weight loss, overweight, cognitive-behavior therapy, self-observation

Introduction

Low-income minority children who are morbidly obese (≥ 100 lb overweight) are at high risk of living a seriously compromised life (1). Unfortunately, most weight loss interventions are less successful with minorities than they are with whites (2), making it especially urgent to evaluate treatments for this virtually unstudied population.

In research involving almost exclusively middle-class white participants, consistency of self-monitoring (systematic observation and recording of target behaviors) has frequently correlated with weight loss (3). Increasing consistency of self-monitoring can also cause significant improvements in weight control (4,5). Self-monitoring, according to theoretical models, should lead to sustained efforts to match behaviors to goals (6). However, chronic stress, unstable homes, poor nutritional habits, and greater acceptance of obesity in low-income minority populations may mediate the effects of self-monitoring on weight loss (7).

Another factor that improves weight loss in obese children is parental involvement (8). If parents show involvement by self-monitoring consistently, thereby modeling the appropriate “healthy obsession” (9), adolescents may be more likely to self-monitor and lose weight. Accordingly, we hypothesized that consistency of parental self-monitoring would correlate with child self-monitoring and improved weight loss.

Research Methods and Procedures

Participants

Participants were 83 obese adolescents and at least one parent for each adolescent who voluntarily enrolled in a long-term cognitive-behavioral and multidisciplinary program addressing obesity and who returned an average of ~ 2 two years after the initial assessment for a follow-up study. Parents or guardians of all participants signed a consent form (approved by the University of Chicago Institutional Review Board) for participation in this study.

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BMI z -scores were computed from the child's BMI at assessment and national BMI norms according to sex, ethnicity, and age (10). The mean BMI at assessment was 43.0 ± 12.9 (SD) kg/m^2 ; mean BMI z -score was 6.0 ± 3.2 ; mean age was 13.0 ± 2.4 years; 51% were boys; 92% were African American, 5% were Hispanic, 3% were white; and 77% received public assistance.

Procedures

FitMatters, a multidisciplinary weight control program developed at La Rabida Children's Hospital, is located on the south side (a low-income environment) of Chicago. The program included cognitive-behavior therapy provided to small groups (separate adolescent and parent groups, $n = 3$ to 6) with open enrollment and encouragement to commit to at least 1 year in treatment. The cognitive-behavior therapy component focused on self-monitoring and techniques such as stimulus control, chaining, stress management, and goal-setting. Parents and participants signed a contract to self-monitor eating and exercising behaviors. FitMatters also included monthly nutrition classes, structured 12-week exercise training, and medical management.

Measures

Initial psychological evaluation assessed potential mediators of behavior change (e.g., behavioral and emotional stability, perceived conflict in the family, pretreatment weight control and health behaviors). Demographic factors assessed included socioeconomic status, age, ethnicity, initial BMI, and intellectual functioning.

Potentially critical process measures (consistency of self-monitoring and attendance) were documented at weekly group therapy sessions. Self-monitoring, coded as occurring for a particular day if three or more entries were observed, was coded by one or two researchers for the week before the session. Interrater reliability was 95%. Height and weight measures were collected at initial assessment and at weekly group therapy sessions.

Results

Participant Self-monitoring

Of the 83 participants who agreed to participate, 22 (26.5%) dropped out after the initial assessment. During the first month of treatment, 17 of the 61 (27.9%) group participants failed to self-monitor (No Monitors), 27 (44.3%) averaged 0.5 to 3.5 days per week (Low Monitors), and 17 (27.9%) averaged 3.75 days per week (High Monitors) (overall mean, 2.19 ± 2.34). Of the 43 participants who remained active for at least 3 months, 30 (69.8%) self-monitored 3.50 days or less, whereas 13 (30.2%) averaged ≥ 3.75 (overall mean, 1.80 ± 1.87).

In the first month, the participants who monitored most consistently (High Monitors) lost significantly more weight

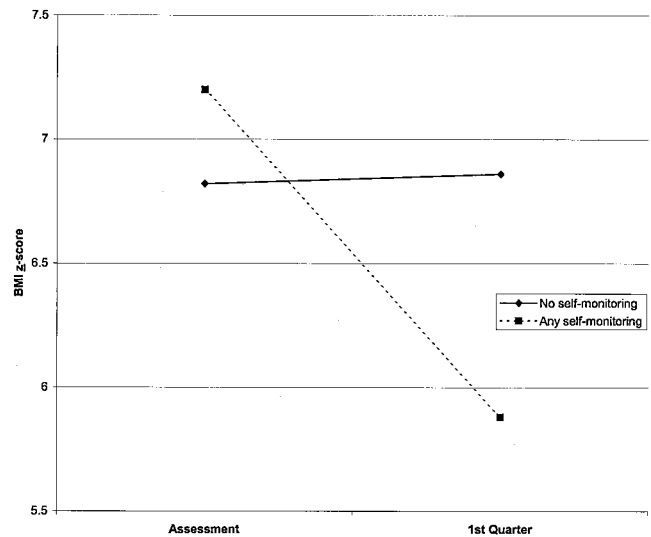


Figure 1: Effects of level of parental self-monitoring on participant weight change during the first quarter (3 months) of treatment.

than those who did not self-monitor at all (No Monitors) [analysis of covariance, $F(2,58) = 5.41$, $p = 0.02$, Tukey honestly significantly different (HSD),¹ $p = 0.02$]. The contrast between these groups for the third month revealed a significant group \times time interaction [$F(2,39) = 3.55$, $p = 0.038$, $\eta^2 = 0.154$], with only the High Monitors losing weight (Tukey HSD, $p < 0.05$).

Analyses over the first quarter (all 3 months combined) revealed a significant group \times time interaction only when the self-monitoring criterion for the High Monitors was raised from ≥ 3.5 to ≥ 5.0 d/wk [ANOVA, $F(1,41) = 10.39$, $p = 0.002$, $\eta^2 = 0.16$]. Extremely High Monitors lost a significant amount of weight ($p < 0.05$), and the combined Low/No Monitoring group failed to lose weight.

Parental Self-monitoring

Despite the fact that parents signed contracts committing to self-monitoring for the first month, only 12% of them self-monitored at all. Only participants whose parents self-monitored lost a significant amount of weight during the first month of treatment [ANOVA, group \times time, $F(1,60) = 7.20$, $p = 0.009$, $\eta^2 = 0.11$; Tukey HSD, $p = 0.03$]. Figure 1 shows that participants whose parents did not self-monitor did not lose weight during the first 3 months, whereas those whose parents did any self-monitoring lost a significant amount of weight [ANOVA, group \times time, $F(1,41) = 10.98$, $p = 0.002$, $\eta^2 = 0.16$; Tukey HSD, $p = 0.001$].

Pearson correlations and discriminant function analyses revealed that parents who self-monitored were much more

¹ Nonstandard abbreviations: HSD, honestly significantly different.

likely to have participant children who self-monitored ($r = 0.43$, $n = 66$, $p < 0.001$; assessed over the first quarter). Parents who self-monitored were also more likely to have children attend twice as many sessions over the course of their treatment (mean = 25.7 ± 15.95 sessions) compared with parents who did not self-monitor [mean = 12.4 ± 11.44 sessions; discriminant function, $F(1,60) = 9.94$, $p = 0.003$, partial $\eta^2 = 0.142$]. Factors such as initial mood, emotional stability, socioeconomic status, and family conflict were uncorrelated with success.

Discussion

By the end of the first 3 months of treatment, only one-quarter of the participants self-monitored on most days. However, consistency of self-monitoring correlated with weight loss in the way it usually does with middle-class adults (4,5) and middle-class adolescents (3). That is, consistent self-monitors lost significantly more weight than non-monitors.

Parental self-monitoring also showed strong correlations with participant self-monitoring and weight loss. These highly significant effects emerged even though only 12% of the parents self-monitored at all. Participants whose parents self-monitored also attended far more sessions.

Taken together, these findings indicate that, despite the challenges faced by morbidly obese low-income minority adolescents, consistent self-monitoring emerged as a cornerstone in effective weight control. Self-monitoring engages critical self-regulatory processes that could culminate in a "healthy obsession" (9), a potentially key ingredient in lifelong weight control.

Regardless of the causes of the relatively low levels observed in both participant and parental self-monitoring, these behaviors deserve to be primary targets in weight control programs. Previous studies have shown that self-monitoring by participants actually causes improved weight control (4,5); these results indicate that parental self-monitoring is correlated with improved weight control for obese adolescents.

The overall modest weight losses and relatively high attrition observed in this study reinforce prior findings showing poorer outcomes for low-income minorities (2). Future studies could use specific measures of stress to clarify whether self-monitoring and weight loss diminish under more stressful circumstances, as commonly experienced in low-income minority families (7). In addition, these results suggest that more intensive treatments (e.g., more frequent contact through Internet, telephone, or residential programs) (11) and more biologically oriented treat-

ments (e.g., medications and surgery) may be warranted for morbidly obese low-income minority adolescents.

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