

Incorporating a Healthy Living Curriculum within Family Behavior Therapy: A Clinical Case Example in a Woman with a History of Domestic Violence, Child Neglect, Drug Abuse, and Obesity

Holly B. LaPota · Brad Donohue · Cortney S. Warren · Daniel N. Allen

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Abstract Women reported to child protective service agencies frequently report problems that significantly interfere with the health and well-being of their children and themselves. Behavioral treatment programs appear to be effective in managing these co-existing problems, such as domestic violence and substance abuse. However, evidence-supported interventions are rarely exemplified in complicated clinical cases, especially within child welfare settings. Therefore, in this case example, we describe the process of adapting an evidence-supported treatment to assist in managing significant co-existing health-related problems in a mother who was referred due to child neglect and drug abuse. At the conclusion of therapy, the participant reported improvements in perceived family relationships, illicit drug use, child maltreatment potential, whereas other health-related outcomes were mixed. Most improvements were maintained at 4-month follow-up. Issues relevant to implementing evidence-based treatments within community contexts are discussed, including methods of increasing the likelihood of valid outcome assessment, managing treatment integrity, and adjusting standardized treatments to accommodate co-occurring problems.

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Keywords Child neglect · Substance abuse · Obesity · Family Behavior Therapy

Obesity is an epidemic problem in the United States. Indeed, most adults maintain a sedentary lifestyle (Bassett et al. 2004; Fung et al. 2000), and only about a third of adults evidence a healthy body mass (Hedley et al. 2004). This is particularly troublesome because sedentary behavior exacerbates health-related problems including heightened risk for cardiovascular disease, increased blood pressure, and greater risk for injuries such as sprains, fractures, and dislocations (Finkelstein et al. 2007; Jessup et al. 1998; Miller et al. 1997).

Individuals diagnosed with a substance use disorder and victims of child neglect are at increased risk for obesity, and these problems frequently co-occur (Ammerman et al. 1999; Locke and Newcomb 2003). For instance, child neglect victims are 10 times more likely to be obese than non-abused victims (Lissau and Sorensen 1994), and increased severity of child maltreatment is associated with a greater risk of adult obesity (Williamson et al. 2002). Moreover, childhood maltreatment is associated with higher rates of eating disorders in adulthood that lead them to seek treatment (Allison et al. 2007). Individuals who seek treatment for substance use disorders also have a higher incidence of disordered eating than those who do not (Pisetsky et al. 2008); and substance cessation is often complicated by an increase in weight. For instance, men in recovery from substance dependence have been found to gain between 14 and 45 lb, and these men were found to gain up to 80 lb throughout the first 36 months of recovery (Cowan and Devine 2008). Thus, treatment providers working in child maltreatment and substance abuse should be prepared to prevent weight gain in their clients.

Given the increased risk for obesity and unhealthy, sedentary lifestyles in families afflicted by substance use

H. B. LaPota · B. Donohue (✉) · C. S. Warren · D. N. Allen
Department of Psychology, University of Nevada, Las Vegas,
Las Vegas, NV 89154, USA
e-mail: Bradley.donohue@unlv.edu

disorders and child neglect, treatment programs for these problems have incorporated family-wide components aimed at improving health (e.g., Weinstock et al. 2008). However, the effects of treatment in co-occurring child neglect, drug abuse, and obesity have yet to be examined. Family Behavior Therapy (FBT) is an established treatment for substance abuse in controlled trials (Azrin et al. 1996, 1994a, 2001, 1994b) that has demonstrated some success in treating problems associated with child neglect (Donohue et al. 2010; Romero et al. 2010a, b). Although FBT includes some of the intervention components that have been successful in the prevention of obesity (i.e., behavioral goal setting, contingency management, stimulus control, self-control; Eakin et al. 2007; Epstein et al. 2004; Munsch et al. 2008), this treatment has yet to explicitly target healthy living behaviors. Therefore, the purpose of this case study was to develop and demonstrate the initial feasibility of a healthy living curriculum within a FBT capable of remediating child neglect and drug abuse. The participant evidenced a history of significant weight gain following cessation from illicit drugs, domestic violence victimization, familial conflict, and dependency on male providers.

Methods

Participant

Martha presented as a 35-year-old Hispanic mother who resided with her six children (ranging from 4 months to 16 years of age), Martha's brother, his wife, and their infant child. The Department of Family Services (DFS) referred Martha to treatment after testing positive for amphetamines during the birth of her child.

Presenting Problems

Martha and her children were victims of domestic violence perpetrated by Martha's boyfriend. The police documented one particular incident after the perpetrator allegedly attempted to hit Martha with a baseball bat while she was pregnant. Subsequently, Martha gave birth to a premature infant who tested positive for methamphetamine. When child welfare workers investigated these occurrences Martha and her boyfriend denied substance use. Her boyfriend was ordered to stay away from the family and was required to attend a domestic violence class. Martha reported a conflicted relationship with extended family members, and that her adolescent daughters were truant from school and engaging in child-to-child violence. Martha had three prior substantiated child neglect cases

relevant to lack of supervision and school truancy. Due to these problems, Martha was referred to treatment.

Case Conceptualization

Martha reported a chronic history of stressors, including an unsupportive family, domestic violence, and her younger brother having committed suicide. She reported dependence on male figures, and appeared to lack appropriate assertiveness skills. Her methamphetamine use, therefore, was perceived to be both negatively reinforcing (i.e., "numbed" feelings associated with stressors) and positively reinforcing (e.g., enhanced confidence to "stand-up" to her husband and provided energy to assist her in interacting with her children). Methamphetamine also appeared to be negatively reinforcing because she reported significant weight gain consequent to methamphetamine discontinuation. Importantly, the effects of methamphetamine clouded her judgment and increased irritability, upset, and fatigue, which, in turn, resulted in poor child care, arguments, and lack of interest in family activities and employment. Martha was diagnosed with Current Amphetamines Abuse (i.e., DSM-IV TR 305.70; First 2000) based on her responses to a structured clinical interview and collateral information collected from her DFS caseworker.

Assessment

The participant was administered a standardized battery of tests and measures by trained technicians who were blind to the nature of this case study one week prior to treatment, 6 months after treatment completion, and 4 months after treatment completion. The utilized assessment measures are fully described in Allen et al. (2009), and included a measure of child abuse potential (*Child Abuse Potential Inventory*, CAPI, Milner 1986), conflict and cohesion in the family (*Family Environment Scale*, FES, Moos and Moos 1984), DSM-IV TR mental health disorders (*Structured Clinical Interview for DSM-IV TR*, SCID-IV, Spitzer et al. 1992), home safety (*Home Safety and Beautification Tour*, HSBT, Donohue and Van Hasselt 1999), life satisfaction (*Life Satisfaction Scale-Revised*, LSS-R, Donohue et al. 2003) and drug use (*Time-line Follow-Back Interview*, TLFBI, Sobell et al. 1986; enzyme immunoassay urinalysis testing).

An abbreviated assessment battery was administered once per month throughout the six months of treatment, and included a measure of body fat (Omron Electronic BIA), the aforementioned LSS-R, participant weight (lbs) and height, rating of intervention helpfulness by Martha (1=

extremely unhelpful, 7=extremely helpful), and client compliance by the therapist (1=extremely compliant, 7=extremely helpful).

Treatment

The participant's treatment plan consisted of several interventions that were administered successively and cumulatively based on her preferences, and the therapist's analysis of family needs. Once the participant acquired sufficient skills to complete target behaviors during role-plays with minimal therapist involvement, the skills were reviewed to a progressively lesser extent. A brief description of FBT components follow (see Donohue et al. 2009 for a more detailed description of these components).

Family Behavior Therapy

1. Behavioral goals. Behavioral goals explicitly target the precursors to drug use, child neglect, and HIV risk behaviors. After standard goals are customized, they are transferred to a written contract that permits monitoring and provision of rewards for their weekly completion.
2. Stimulus control. Stimulus control techniques help the client identify, monitor, and eliminate stimuli that increase the likelihood of drug use, child neglect, and HIV (at-risk stimuli) and seek to increase time spent with stimuli that decrease the likelihood of drug use, child neglect, and HIV (safe-stimuli).
3. Self control. Teaches family members to recognize early triggers to drug use, HIV risk behaviors and child neglect, and consequently engage in a series of behaviors that increase the likelihood of pro-social behavior, such as relaxation, problem-solving, imagining performance of pro-social behavior and rewards.
4. Basic necessities. The Assurance of Basic Necessities and Safety worksheet is used to teach family members to tour their home for hazards that are dangerous, and prevent potential emergencies.
5. Communication skills.

I've got a great family. Assists family in recognizing positive aspects of one another by prompting them to indicate things they love, admire, or respect about one another.

Positive request. Designed to increase the number of positive exchanges among family members by teaching behavioral skills relevant to making effective requests.

Arousal management. Therapists teach consumers a series of behaviors to perform when they are upset with

the actions of others, including early identification of antecedents to anger, relaxation, non-emotional description of problem, blaming problem on the environment (and not the involved party), and stating how the consumer may have contributed to the problem.

6. Child Management Skills

Catching my child being good. Teaches parents to ignore undesired behaviors in children and reinforce desired child behaviors with attention, immediate reinforcement, descriptive praise, tactile reinforcement, pleasant tone of voice, and queries.

Positive practice. When children engage in undesired behavior due to improper or insufficient learning, clients are instructed to first blame their performance of these undesired behaviors on the environment, and then lead children to practice desired behaviors instead.

Child compliance training. Teaches parents to direct and consequence their children.

7. Financial management. Assists families in learning to identify precursors to financial deficits, prioritize spending, and obtain and manage additional sources of income leading the family to successfully balance their income and other resources.
8. Job club. Assists clients in requesting job interviews, and job interviewing skills.
9. Home safety. A Home Safety and Beautification Tour is completed to assure the family home is safe and stimulating. Therapists and family identify home hazards, and establish safety plans to ameliorate potential concerns.

Integration of a Healthy Lifestyle Curriculum into Family Behavior Therapy

To accommodate the benefits of a healthy diet and physical activity, FBT protocols were revised to include goals consistent with a healthy lifestyle including eating meals as a family, taking family walks, engaging in recreational sports with family, and eating from all food groups. A home safety tour was completed to further determine the presence of healthy foods within the home. Further, modules focused on eliminating urges to engage in unhealthy lifestyle actions including monitoring antecedent conditions for sedentary behavior and unhealthy eating choices and utilizing self-control when urges to engage in these behaviors occurred. Family activities were scheduled that permitted an active lifestyle and promoted positive familial interactions. Financial management modules were modified to include a determination of budget and junk food

consumption. Finally, employment modules were modified to include a discussion of jobs that promote active lifestyle.

Methods to Improve Participant Attendance and Retention

Several methods were implemented to enhance treatment completion. On a weekly basis, treatment session attendance was reinforced during weekly telephone calls, and during these calls, therapy assignments were reviewed, and participant concerns were addressed. A prepaid cell phone with unlimited minutes was provided to the participant as a contingency for attendance at weekly sessions and to assist in assuring implementation of the aforementioned teletherapy.

Course of Treatment and Assessment of Progress

The family received 20 treatment sessions during 6 months. Each session lasted between 90 and 120 min and was conducted once or twice per week. Treatment sessions were scheduled to occur in Martha's home with at least one adult significant other (e.g., Martha's sister-in-law). However, during the course of treatment, Martha's adult supportive other withdrew from treatment (she attended three sessions). With the exception of her oldest adolescent daughter, Martha's children were typically present for treatment sessions. All treatments were standardized and implemented in a structured format utilizing protocol checklists that depicted the specific behavioral steps necessary to implement each treatment component.

Treatment Integrity

A protocol adherence specialist blind to the treatment design monitored randomly selected audiotapes to determine the presence or absence of therapy protocol, while the therapist separately reviewed protocol in all session audiotapes. Protocol adherence was calculated by dividing the number of protocol steps completed according to the therapist by the number of protocol steps possible for each therapy according to the therapist. The therapist indicated that 98% of the prescribed protocol was performed throughout treatment. The reviewer's reported protocol adherence was correlated with the therapist's measure of adherence ($r=.98$, $p<.01$). Thus, Martha reliably received the prescribed intervention components.

Treatment Progress

Response to Interventions Martha was able to report antecedent stimuli that were associated with ineffective parenting and unhealthy lifestyle (e.g., lack of familial routine and money, fatigue, eldest daughter frequently

“running away” from home and not attending school). Martha established and updated goals relevant to improving communication with her children, establishing a familial routine, enrolling in an online college program, obtaining a driver's license, obtaining transportation, placing child safety equipment in the home, and exercising to decrease her stress and anxiety. Martha's negative emotional states and substance use were effectively targeted as cues during Self Control and Stimulus Control concurrently. Communication was targeted by scheduling family time to aid in discussion of each child's day and familial concerns that may be present. Further, strategies aimed at stating desires in an assertive, non-judgmental manner were utilized during role-plays with all present family members. A favorite intervention for the family was one in which positive remarks were exchanged during treatment sessions with one another in an effort of increasing the amount of positive communication among family members. As positive family activities increased, the children reported Martha was “not yelling as much,” and Martha reported less stress within her family as she did when treatment was initiated.

Client Helpfulness and Compliance Ratings The participant reported all interventions to be very (6) to extremely (7) helpful ($M=6.21$, $SD=.55$, $N=33$ ratings), and the therapists reported the participant was somewhat (5) to very (6) compliant ($M=5.91$, $SD=.68$, $N=33$) with the interventions. The participant reported Self-Control to be the most helpful intervention ($M=7.00$) and she was rated by therapists to be most compliant with this intervention ($M=7.00$).

Weight Martha's weight loss goal was to achieve her pre-pregnancy weight. However, during treatment she reported that her medical doctor informed her that this goal was unreasonable because her pre-pregnancy weight was “too thin.” She indicated that he stated he was satisfied with her current weight level, and did not feel comfortable targeting a substantial decrease in weight. The therapist was unable to substantiate these reports. However, objective measures indicated that she failed to demonstrate weight loss. Indeed, at pre-treatment assessment Martha weighed 134 lbs with a body fat percentage and mass of 32% and 43 lbs, respectively (Obese range, WHO 2000). Upon conclusion of treatment, she demonstrated a 3% increase in BMI (4 lb increase in fat mass), and weight was not assessed at follow-up due to an oversight by the blind assessor. Interestingly, throughout treatment, Martha reported increases in her satisfaction with her appearance and treatment providers noted that she increasingly “dressed-up” as treatment progressed (rather than staying in her pajamas). Martha also reported that her family was

engaging in exercise more frequently and that they were no longer taking second portions of foods during meal times. She reported eating fried foods less often.

Life Satisfaction Martha’s reported equivalent or greater satisfaction in the LSS-R domains from pre- to post-treatment, and these results were generally maintained at 4-month follow-up with a couple of exceptions. Each item of the LSS-R depicts a phrase representing a domain that is relevant to life satisfaction (e.g., “Employment”). Martha was queried to indicate the extent of her satisfaction in each of 12 domains (see Allen et al. 2009). The content areas of Family, Appearance, Romantic Relationships, Ability to Avoid Alcohol, and Transportation evidenced increased satisfaction at post-treatment. She did demonstrate decreased satisfaction at follow-up assessment in employment and appearance (i.e., return to pre-treatment level).

Substance Use (See Table 1) Based upon the participant’s responses on the SCID-IV and information obtained during the initial intake interview with the participant’s caseworker, she was diagnosed with Current Amphetamine Abuse. The abuse diagnosis was heavily influenced by her report of neglect to child protective services and her child testing positive for methamphetamine at birth. She reported three days of methamphetamine use during the 120 days prior to the pre-treatment assessment on the TLFB, and six “drinks” of alcohol during that same period of time. Her caseworker reported 4 positive drug tests during the 4-months prior to the pre-treatment assessment. Her urine analysis results for the pre-treatment assessment was negative. According to the participant’s responses on the SCID-IV during the

post-treatment assessment, she no longer met criteria for Amphetamine Abuse and her urine analysis was negative, which was consistent with the TLFB at the post-treatment assessment and follow-up. She reported drinking alcoholic beverages more often at the post-treatment assessment although her alcohol use substantially decreased at follow-up assessment to less than the amount reported prior to treatment.

Child Neglect and Abuse (See Table 1) CAPI scores were substantially lower at post-treatment and follow-up. The Abuse scale is a composite of other factor scores that measures the degree to which a respondent’s response pattern matches that of a person who has likely maltreated children; the participant’s pre-treatment abuse score approached significance for persons who have been referred for child maltreatment. At post-treatment assessment her score on the Abuse scale dropped dramatically and this decline was maintained at follow-up. The TLFB indicates that the caseworker placed the infant back in the participant’s home after the child was removed for 63 days following the initial neglect report (during the 4 months preceding treatment), and was not in Family Services custody thereafter. Therefore, the results of these scales appeared to indicate general improvements in emotional and familial functioning relevant to abuse potential.

Family Functioning (See Table 1) According to Martha’s scores on the FES Conflict and Cohesion subscales, she was indicated to be functioning in the Average range, with slight improvements demonstrated at post- and follow-up assessments for Cohesion, and improvements demonstrated in conflict from pre- to post-treatment only. Indeed, her scores increased substantially from post-treatment assess-

Table 1 Pre-treatment, post-treatment, & follow-up assessment results

Measure	Pre-Treatment	Post-Treatment	Follow-Up Treatment
Child Abuse Potential Inventory Raw Scores (Clinical cut-off scores are in parentheses)			
Abuse Potential (215)	203	39	61
Problems with Family (18)	38 ^a	7	6
Distress (152)	94	0	8
Unhappiness (23)	0	0	3
Problems with Child and Self (11)	0	0	0
Problems with Others (20)	24 ^a	3	10
Rigidity (30)	47 ^a	29	34 ^a
Lie (8)	12 ^a	15 ^a	13 ^a
Family Environment Scale T-Scores (Higher scores indicate greater cohesion/conflict)			
Conflict	44	33	54
Cohesion	59	65	65
TimeLine Follow Back (during 120 days previous to assessment date)			
Days of Methamphetamine Use	3	0	0
Drinks of Alcohol	6	7	1
Child in DFS Custody	63	0	0

^a Indicates standardized scores that are clinically elevated

ment to follow-up assessment. This seems to indicate that her family may have been experiencing relatively greater levels of commitment and support from each other after treatment due to more time together doing family-focused activities. However, her family demonstrated more conflict at follow-up assessment, which is consistent with a higher number of instances of expressed anger resulting from greater interaction and potential for disagreement.

Home Safety At post-treatment, the family was no longer living in the home that was assessed for safety at pre-treatment (moved from a 2-bedroom apartment to a 4-bedroom apartment). However, in contrast to pre-treatment assessment risks (i.e., sharp corners on furniture, spoiled food, accessible cleaning supplies, tipsy heavy boxes), only minor safety risks were present at post-treatment and follow-up. The participant had placed covers on electrical outlets and decorated the second home to make it stimulating for the children.

Validity There is some evidence to suggest the participant was responding in a defensive manner due to a significant elevations on the Lie scales of the CAPI that were administered during the pre, post, and follow-up assessments. An elevated Lie scale on the CAPI may indicate a social desirability bias that affected other self-report measures. Her responses suggest that although Martha probably improved on most of the administered measures, she may not have evidenced improvements to the extent that was reported.

Discussion

Overall, Martha evidenced improvements in most domains that were assessed from pre-treatment to post-treatment, and these gains maintained at 4-month follow-up. Martha's self-report and objective urinalysis testing results indicated continued cessation of substance use. She also evidenced lower potential for child abuse, and with the exception of conflict at follow-up, her family relationships were generally improved. She reported more satisfaction in several of the life domains that were assessed. These issues have been successfully demonstrated in previous trials involving FBT (see review of FBT above). It is important to note that the CAPI validity scales suggest improvements in various problem behaviors may have occurred, but perhaps not to the extent she reported. Indeed, her accomplishment of healthy lifestyle goals at the conclusion of treatment were relatively less accomplished. She reported that she and her children were more frequently engaging in healthy behaviors such as, eating fewer fried foods, exercising, and

limiting meals to one plate. She also evidenced a greater awareness of the caloric intake of foods and a greater ability to display self-control when eating. However, her weight increased slightly during treatment, although at a much lower level relative to her previous efforts to abstain from methamphetamine.

It has been documented that within a low-income population, overweight women engage in emotional eating and have a reduced ability to participate in health-related behaviors when faced with stressors (Chang et al. 2008). Thus, when working within low-income families, eliminating or decreasing stressors for the family as well as strengthening the family as a cohesive unit is of primary concern. As such, Kitzmann et al. (2008) reported better health-related outcomes in families that have low familial stress and high familial support, regardless of the specific health intervention utilized. In this endeavor, healthy living strategies were utilized in the present case to minimize stressors (e.g., adolescent daughter running-away, unsupportive family structure) by teaching communication strategies aimed at requesting needs and help in an appropriate manner. The participant reported several significant stressors, which probably increased her likelihood of drug use relapse (Tate et al. 2005). Indeed, she experienced domestic violence, substance use, a run-away adolescent, estranged extended family, lack of financial support from her children's fathers, lack of transportation, diabetes, suicide of her close brother, and lack of economical resources. These stressors were converted to treatment goals, and monitored during each week of therapy. In this manner, treatment planning could directly and immediately address these stressors through skill building exercises that were prioritized based on imminent threat to the well being of the client or her minor children. For instance, when the participant's abusive boyfriend made an unplanned visit to the home, the aim of treatment was to make sure that domestic violence would not occur during those visits utilizing techniques taught during Stimulus Control. It was further conceptualized that this approach would decrease the likelihood of antecedent stimuli to drug use (i.e., triggers) and permit other explicit interventions to be put on hold.

However, as reported above, this case demonstrated mixed results regarding the efficacy of implementing a health program within a structured, evidence-based framework for substance abuse and child neglect. Generally, cessation from stimulant substances is associated with weight gain (Jeffery et al. 2000). Therefore, it is encouraging that this participant was able to achieve cessation from substances and child neglect while avoiding an abusive partner and significant and expected weight gain (see Cowan and Devine 2008). However, the results suggest other strategies may be necessary to bring about weight

loss, such as interactions with medical staff who may indicate conflicting goals. Indeed, weight loss in this complicated case was associated with unique challenges. For instance, supermarket proximity, cost of food, access to recreational facilities, and neighborhood safety have been listed as important environmental determinants of healthy behavior within Hispanic families (Lindsay et al. 2009). Martha resided across the street from a recreational facility in which she began volunteering. However, this facility was located within a high crime neighborhood. Further, the participant reported requiring a full day to shop for groceries due to the necessity to take public transportation to acquire her supplies and the need to bring along children at times to help carry the bags. These factors have been shown to influence obesity related outcomes (Spence et al. 2009). However, these issues are often not addressed in weight loss programs. Thus, providing greater access to supermarkets and other treatment strategies that were implemented in this case may offer benefits. However, given that Martha evidenced significant problems across multiple areas, it was difficult to prioritize treatment targets. Therefore, the results of this case, although promising in the prevention of severe obesity, suggest additional programming and better planning may be necessary to obtain weight-loss when multiple other severe problem behaviors are present (e.g., substance abuse, domestic violence, child neglect, poverty).

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