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Perspectives For Adolescent Engagement: The Bright Bodies Program

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ABSTRACT

While responses to the obesity epidemic have largely encompassed top-down approaches with a focus on health-related outcome evaluation, for successes to be sustained, a greater emphasis is needed on local initiatives and intervention process evaluation. Pediatric weight management programs in the healthcare and community settings represent local initiatives that have had considerable health-related impacts, yet are often limited by high attrition rates. Because adolescence is marked by substantial weight shifts and the formation of long-lasting health habits, it represents a critical point for implementing obesity prevention and treatment. Accordingly, this study sought to assess factors that promote adolescent participant engagement with the Yale Bright Bodies healthy lifestyle program, a 12-week program for children ages 7-16 in New Haven, CT. Through adolescent and instructor surveys, adolescent engagement was examined in relation to program-related factors and weight outcomes—with additional insight into the program process offered through program observations. Despite the high attrition often seen in this setting, over half of this diverse, inner-city sample completed ≥ 3 12-week program cycles (≥ 36 weeks). Moreover, improvements in body composition were observed, with significant reduction in starting and ending body fat percentages ($p=0.012$) and borderline significant reduction in BMI ($p=0.055$). Adolescents and instructors highlighted the importance of the instructor-participant and participant-participant bonds, engaging activities, and a family-based approach. In support of these findings, higher adolescent rankings of instructor-related factors were significantly correlated with positive weight outcomes. Because adolescents highly valued the relationships with program instructors, future efforts should evaluate the impact of instructor-adolescent relationship building on program retention/attrition and weight outcomes in other settings where adolescents have consistent, supportive relationships with clinicians.

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INTRODUCTION

Context

Since the U.S. obesity epidemic was recognized in 1999 following publication of Center for Disease Control and Prevention (CDC) data demonstrating rapid increases in the prevalence of obesity, numerous obesity prevention and control efforts have been implemented (Dietz, 2015). The response to the obesity epidemic has been characterized by myriad top-down approaches, including support from the CDC, Congressional funding, the Robert Wood Johnson Foundation, the Institute of Medicine, and more recently the First Lady Michelle Obama's *Let's Move!* Initiative (Dietz, 2015). Obesity prevention efforts have seen several successes, including a plateau in obesity prevalence among older children, adolescents, and adults (Ogden, Carroll, Kit, & Flegal, 2014), as well as an observed decrease in obesity prevalence among children 2-4 years old between 2008 and 2011 (Centers for Disease & Prevention, 2013). Despite these improvements, approximately 35% of adults and 17% of children and adolescents remain obese (Ogden et al., 2014). Notably, the observed obesity prevalence plateau has not yet reached certain subgroups of children such as racial/ethnic minorities and those who are publically insured or live in households with incomes below the Federal Poverty Level (Bethell, Simpson, Stumbo, Carle, & Gombojav, 2010).

In the long term, children and adolescents who are obese are at a greater risk of becoming obese adults, and are therefore prone to a host of health risks including heart disease, type 2 diabetes, stroke, several types of cancer, osteoarthritis, and premature mortality (Centers for Disease & Prevention, 2015; Freedman et al., 2005; Reilly & Kelly, 2011; U.S. Department of Health and Human Services, 2010). Importantly, habits formed during the developmental phase of adolescence are long-lasting (Board on Children, 2007; Schwarz, 2010), with substantial shifts

in overweight and obesity occurring between adolescence and adulthood (Patton et al., 2011) Accordingly, adolescence represents a critical point for implementing effective obesity prevention efforts and treatment (Smith, Straker, McManus, & Fenner, 2014), with initiatives being particularly important among those groups who disproportionately experience obesity.

To sustain the gains seen from large-scale obesity prevention efforts, it has been argued that a greater emphasis on local level initiatives will be needed (Dietz, 2015). Examples of such efforts may include targeted pediatric obesity programs within the primary care, community-based, and/or tertiary care settings. Notably, the 2011 Cochrane review reported strong evidence for support of beneficial effects of child obesity prevention programs on BMI (Waters et al., 2011). While these programs hold immense promise to address the serious health consequences and health disparities associated with obesity, such programs are often constrained by high rates of attrition, low resources, and/or the limited timeframe of visits. Attrition is widespread among obesity treatment programs, with estimates ranging between 27-73% (Skelton & Beech, 2011; Skelton, Irby, Beech, & Rhodes, 2012). Because attendance and completion of such programs is associated with better weight loss outcomes (Moroshko, Brennan, & O'Brien, 2011), minimizing attrition—and conversely maintaining patient engagement—is a critical component of obesity treatment program planning.

Yet, while many studies report on health outcomes related to obesity treatment programs, there is less investigation into the methods used for the process of program delivery—which can have important impacts on behavioral change, participant engagement, and attrition (Smith et al., 2014). A systematic review conducted by Skelton et al. (2014) found 18 studies that assessed satisfaction among participants and/or families involved with pediatric weight management programs, however, only one study linked satisfaction to attrition (Cote et al., 2004) and no

studies assessed the association between satisfaction and weight outcomes (Skelton, Irby, & Geiger, 2014).

Following assessment of caregiver-reported perceptions of attrition from a pediatric obesity program, Cote et al. (2004) found that the most commonly reported reasons for attrition included inadequate insurance coverage for program costs, the child's desire to leave the program, as well as the program taking too much time (Cote et al., 2004). Additional caregiver perspectives of factors influencing participant attrition have included: scheduling difficulties; practical barriers such as transportation issues and family demands; difficulty implementing recommendations; and lack of adolescent motivation (Brennan, Walkley, & Wilks, 2012; Hampl et al., 2013). Clinician and other community stakeholders have also voiced perceived factors that impact attrition in this setting with factors including familiarity/comfort with the treatment setting; relationships between families and staff; fun and engaging curricula; involvement of the family; incorporation of electronic media and online components; the importance of good facilitators; making the goals realistic and achievable; and incentivizing parent participation (Skelton et al., 2012; Smith et al., 2014).

Notably, few studies have directly assessed adolescent perspectives of factors that affected their engagement in an obesity treatment program. In an attrition analysis of a family-based cognitive behavioral lifestyle program, Brennan et al. (2012) explored adolescent and parent-reported barriers to program participation, with adolescent-reported barriers including: the program did not work; dislike of the program components and strategies; practical barriers (travel/school work); and other individual and family demands (Brennan et al., 2012). Additionally, through focus groups, an online survey, and semi-structured interviews, Smith et al. (2014) assessed adolescent, parental, and community stakeholder opinions on barriers and

enablers for healthy lifestyle program participation. An adolescent participant emphasized the importance of parental involvement for program retention, particularly because parents are in charge of the food and screen time at home (Smith et al., 2014). However, findings from this study related to the adolescent perspective are limited given the limited sample of adolescents included who had participated in the healthy lifestyle program (focus group: n=1, online survey: n=5) as well as the limited diversity of the study sample (a majority of white adolescents from middle-low socio-economic areas in Western Australia) (Smith et al., 2014).

Yale Bright Bodies Healthy Lifestyles Program

Accordingly, our research group sought to build upon the existing literature to assess adolescent and instructor perceptions of program delivery-related factors that impact adolescent retention in the Yale Bright Bodies Healthy Lifestyles Program for Children, a 12-week family-centered intensive healthy lifestyles program offered through Yale New Haven Hospital, New Haven, CT and carried out within the community setting. Uniquely, the Yale Bright Bodies program is specifically tailored to the needs of inner-city, low-income minority children (Savoye et al., 2007). Notably, Bright Bodies has demonstrated beneficial effects in body composition (Savoye et al., 2005; Savoye et al., 2007; Shaw et al., 2009), insulin resistance (Savoye et al., 2014; Savoye et al., 2007; Shaw et al., 2009), glucose tolerance (Savoye et al., 2014; Shaw et al., 2009), and improved self-concept (Savoye et al., 2005). The program has been successfully replicated in a variety of settings locally and internationally. As a prominent example, the Bright Bodies model was recently conducted with Chilean children and adolescents, who demonstrated significant positive changes on anthropomorphic and metabolic parameters following 8 months of program involvement (Bustos et al., 2015).

Unlike the significant attrition rates faced by many healthy lifestyles intervention programs, Bright Bodies has seen a high level of participant engagement. In a randomized controlled trial where participants were assigned to either clinical weight management counseling every 6 months (control) or 12 months of the Bright Bodies program (intervention), intervention participants had higher completion rates compared to controls (71% versus 64%, respectively), even though the control condition required very little burden on these participants (Savoye et al., 2007).

Given Bright Bodies' program participant demographics and weight distribution, as well as the program's distinctly high engagement, inquiry into perceptions of the program's adolescents and instructors can provide novel insight into mediators for program completion among a high-risk, inner-city pediatric population. Accordingly, a mixed methods study was completed, including: (1) an adolescent participant survey, (2) an instructor survey, and (3) field note program observations. Through this multi-level assessment, we aimed to elucidate the factors that promote adolescent participant engagement in a pediatric weight management program, with the ultimate goal of informing future local adolescent obesity prevention adolescent efforts, particularly among high-risk populations.

METHODS

Design

A cross-sectional survey including a Likert-like scale was administered to Bright Bodies adolescent participants. The use and favorability of Likert scales for pediatric populations is well established within the literature (Herdman et al., 2002; Matza et al., 2013; van Laerhoven, van der Zaag-Loonen, & Derkx, 2004). The cross-sectional nature of this survey allowed for hypothesis generation and topic exploration of program and personal factors that adolescents

found helpful for program completion. Adolescent anthropomorphic data (starting and ending BMIs and percent body fat) were obtained. A qualitative content analysis approach was used to analyze open-ended adolescent survey questions. This qualitative approach was also used to analyze open-ended questions from a cross-sectional survey administered to *Bright Bodies* instructors, allowing for further exploratory research related to the Bright Bodies program process and participant engagement. Overt, non-participant field note observations were additionally completed to further increase understanding of the Bright Bodies program process.

Sample and Setting

The Bright Bodies, which began in 1999, enrolls children ages 7 to 16 years (BMI $\geq 85^{th}$ percentile), and serves an ethnically diverse population (38% Non-Hispanic Black, 26% Hispanic, and 36% Non-Hispanic White) who are referred via healthcare providers or community members (Savoye et al., 2014). The program meets on a biweekly basis and is held during the evenings at a local community school. Bright Bodies uses the Smart Moves ™ curriculum ("Bright Bodies Weight Management Program for Children. Yale Center for Clinical Investigation and Pediatric Endocrinology, Yale School of Medicine," 2016) which includes (1) nutrition education (2) exercise and (3) behavior modification components. Program components were developed to be accessible to all members of this inner-city, multi-ethnic population and are available in English and Spanish (Savoye et al., 2007).

Bright Bodies staff includes a registered dietician, exercise physiologists, as well as undergraduate students training within these areas. Weekly sessions include two 50-minute exercise sessions and one 50-minute nutrition session for both parents and children. Child and parent behavior modification classes additionally occur 4 times per 12-week program session (Savoye et al., 2014), and children are also encouraged to exercise at least 3 additional days at

home per week (Savoye, 2016). To ensure that activities are age appropriate, participants complete some nutrition and exercise activities that are grouped into older versus younger age categories (7-10 years old and 11-16 years old, respectively).

Bright Bodies includes three annual program cycles. Program cycles are 12-weeks in length and occur during the fall, winter, and spring, respectively, with each program cycle including at total of 24 total sessions. Open enrollment is offered throughout each session up until 4 weeks remain within the program cycle. A one-time enrollment fee and Smart Moves workbook™ fee are required, with costs subsidized for some families in need through donor or grant funding. The enrollment fee is intended to increase participant commitment, offset some program expenses, as well as serve as "petty cash" for participant prizes (Savoye, 2016).

To be included within the Bright Bodies program, participants must have a BMI $\geq 85^{th}$ percentile based on the Centers for Disease Control and Prevention (CDC) growth chart (Centers for Disease & Prevention), be between 7-16 years old, and have English-speaking ability (Savoye et al., 2007). Additionally, participants have to show an interest in the weight management program and have a caregiver (father, mother, grandparent, or legal guardian) willing to participant in the educational components of the program (Savoye et al., 2007). Participants are excluded from the program if they have a psychiatric disorder (schizophrenia, severe autism, mental retardation, or psychosis) or other serious medical condition that would not allow for program participation (Savoye et al., 2007).

Adolescents who had completed at least one 12-week Bright Bodies program (completion defined as attending ≥ 5 visits during at least one 12-week program session) and were ages 11-16 during the time of program enrollment were invited for study participation. Participants who were involved in some but not all program Bright Bodies program components were excluded

from anthropomorphic analyses, however, were permitted to complete the study survey to the extent of relevant experience. For the instructor survey, all current/previous staff involved in the Bright Bodies program since program inception was invited to participate.

Procedures

Adolescent Survey

A 33-item survey was administered to a convenience sample of adolescents who completed the program between December 2012 and December 2015. The survey was adapted from the "Completion and Non-Completion Questionnaire" as implemented by Brennan et al. (Brennan et al., 2012) that assessed barriers to completion and was additionally informed by the dimensions of patient satisfaction surveys of pediatric obesity treatment programs as compiled in the systematic review conducted by Skelton et al. (2014) (Skelton et al., 2014). A Likert-like scale was used to assess adolescent perspectives regarding 23 different program factors, including: factors related to program component/strategies (n=5), participant comfort (n=6), and instructor-related factors (n=12). Among those program factors listed within the survey, participants were asked to rank the top three factor that were most important to them. Participants were also asked to provide any additional program or personal factors that they felt were helpful for program completion.

Yale University IRB approval was obtained from the Human Research Protection Program and the Pediatric Protocol Review Committees. Participant verbal assent and parental verbal consent were obtained for survey completion as well as for collection of program starting and ending Body Mass Index (BMI) and percent body fat measurements. Verbal versus written consent was used for this study since participation required no more than minimal risk and because written consent was impractical given that consenting study personnel included program

instructors responsible for program delivery. Surveys were administered either in person or vial mail by authorized study personnel (A.Samaras, M. Savoye, and M. Shaw). Surveys and consent forms were mailed to families who first consented and agreed to participate via telephone. Participants who completed the program ≥ 1 year prior to survey administration were offered a $10 iTunes gift card on behalf of the Bright Bodies program funds. This compensation was offered given the amount of time that had elapsed following program completion and to incentivize return of mailed surveys, since mailed surveys were necessary for those not currently involved in the program. For adolescent participants who completed the program < 1 year ago, no payment was offered for participation given limited program funding and because of the availability for participants to complete the surveys in-person. Surveys were number-matched to anthropomorphic data, with all participant data maintained as confidential and anonymous.

Instructor Survey

A 12-item web-based survey was developed using Qualtrics software distributed via email to all current/previous Bright Bodies staff/instructors (n=14) during March 2016 (Appendix II). The survey was aimed at gaining further insight into engagement-related factors as well as the program process and implementation. Survey development was guided by the W.K. Kellogg Foundation Evaluation Handbook, which provides a framework for thinking about evaluations as a useful program tool ("W.K. Kellogg Foundation Evaluation Handbook," 2010). Yale University IRB Human Research Protection Program approval was obtained and participants were consented online. No monetary compensation was provided to instructor/staff participants and no identifiers were collected as part of the survey.

Program Observation

Yale University IRB approval was obtained for program observation and participant verbal assent and parental verbal consent were obtained. Notes were recorded by non-participant observer, A. Samaras, using an observation guide (Appendix III), that was informed by principles outlined by the CDC's Program Evaluation: Observation guide (Centers for Disease & Prevention, 2008). To allow for increased program observation variety, observations (n=2) included an exercise only session as well as a session including exercise, nutrition/behavioral modification, and a parent class. Observation notes focused on (1) documentation of program structure/components and (2) interactions during the various program components (nutrition education, physical activity, behavioral modification skills training, and parent involvement). No identifiers were noted in field notes and direct quotes were recorded with permission only.

Quantitative Analysis

Adolescent Survey

Quantitative adolescent survey data analysis was completed using IBM Statistics SPSS Software 22. Descriptive statistics of the adolescent sample were completed to assess study sample characteristics (n=29). One participant was excluded from anthropomorphic analyses given that this participant was involved with some but not all program components. Mean comparisons were made to report mean pre-program BMI and mean percent body fats as well as corresponding mean changes in these anthropomorphic measurements according to gender, age, race/ethnicity and number of program cycles completed.

Paired t-tests were completed to assess changes in starting and ending adolescent BMI and percent body fat (n=28). Paired t-tests were additionally completed to assess for BMI and percent body fat percent changes according to adolescent age percentile (n=28). Multiple linear

regression analysis was used to assess the relationships between outcome variables (percent BMI change and percent body fat % change) and gender, age, race/ethnicity, and number of 12-week programs completed (n=28). Independent t-tests and/or one-way ANOVA were used to assess for statistical differences in the number of 12-week program cycles completed based on the gender age, and race/ethnicity (n=29). For anthropomorphic data, independent t-tests and/or one-way ANOVA were used to evaluate for differences in starting and ending BMI and percent body fat according to age, gender, and race/ethnicity (n=28).

For Likert scale survey items 8-30, raw scores were correlated with outcome variables BMI change, percent body fat change, and number of program cycles attended. Likert scales were classified into three subscales based on question content as well as the original survey that was adapted for use in this study. Mean subscale scores were also correlated with outcome variables BMI change, percent body fat change, and number of program cycles completed. Likert survey question frequencies and response percentages were calculated for each question. Given the small sample size, fisher's exact tests were completed to assess whether responses differed according to "completer type" (lower completers: completed 1-3 12-week program cycles; higher completers: completed ≥ 4 12-week program cycles), with survey item response categories collapsed as follows: strongly agree/agree versus undecided/disagree/strongly disagree. Finally, for survey question 31, *"Out of the factors (questions 8-30) listed above, which* ***three*** *were most important to you?"* adolescent participant rankings were tabulated.

Instructor Survey

Instructor survey sample descriptive statistics were additionally completed using IBM Statistics SPSS Software 22. Instructor rankings were tabulated for survey question 8, *"What aspects about the Bright Bodies program do you feel are most important for adolescent participant*

*engagement? Rank the **top three** factors from the following list: program convenience (location/visit timing); program weight management strategies; participant comfort in taking part in the program; parental involvement in the program; positive instructor-participant/parent relationships; positive participant-parent relationships; and positive participant-participant relationships."*

Qualitative Analysis

Adolescent Survey

A qualitative descriptive approach and content analysis led to the development of themes for adolescent survey questions 31 and 32, *"What other things about the Bright Bodies program (not listed above) were important to you?"* and *"What personal factors about yourself do you feel helped you complete the program?"*, respectively).

A single researcher (A. Samaras) reviewed data for each respondent to develop a coding structure to perform open coding to identify key themes and patterns in responses. A frequency analysis was used to analyze response data. Non-relevant responses were excluded from the coding process. For field note observations, shorthand field notes were reviewed, expanded, and synthesized according to physical activity, nutrition/behavior modification, and parental class components.

Instructor Survey

The aforementioned qualitative analysis methods used for adolescent survey responses were completed in an identical fashion for the instructor survey questions, 8-13 including:

- *"What **other** factors do you feel are important for participant engagement?*

- *"What are barriers for participant engagement? Are there unique contextual barriers to participant engagement faced by Bright Bodies participants who live within inner-city environments? If so, please elaborate."*
- *"What do you feel are unique strengths about the Bright Bodies program?"*
- *"What are examples of challenges you have faced during the implementation of the Bright Bodies program?"*
- *"Looking forward, how do you feel the Bright Bodies program could be modified to best meet the needs of participants and families, including promoting participant engagement?"*
- *"Please share any additional thoughts regarding your experiences as a Bright Bodies staff member that you feel are important."*

Methodological Rigor

To promote methodological rigor, several techniques were employed. Prior to study design and implementation, a literature review was completed to assess needs in this area (Whittemore, Chase, & Mandle, 2001). Additionally, the adolescent-administered survey was based on a previously administered survey and was informed by empirical and theoretical attrition literature (Brennan et al., 2012). Notably, the previously implemented instrument showed a small-medium effect size (d=0.4442), when assessing adolescent and parent-perceived barriers to participation in an overweight and obesity intervention (Brennan et al., 2012; "Lyon Morris: The Meta Analysis Calculator," 2016). Study validity was also promoted through the use of triangulation by obtaining data from adolescent participants, program instructors, as well as through field note observations allowing for additional insight into the parent perspective (Whittemore et al., 2001). Rigor of qualitative research methods

was supported through the ability to provide thick, rich descriptions through open ended responses as well as program observations (Whittemore et al., 2001). Moreover, responses were elicited within a socio-ecological framework, allowing for consideration of participant engagement within the broader context of potential contributing factors (Nakkeeran & Zodpey, 2012).

RESULTS

Adolescent Survey

Contact for study inclusion was attempted for a total of 40 participant/guardian pairs (n=29 in-person and n=11 via telephone). Telephone contact attempts were made for 11 pairs, five of which were ultimately reached. All adolescent/guardian pairs who were approached in-person (n=26) or via telephone (n=5) consented/assented to take part in the study. Accordingly, out of a total of 34 adolescent/guardian pairs who were consented/assented, 29 adolescent surveys were returned (response rate: 85.3%; n=26/26 surveys returned in-person and n=3/5 surveys returned via mail).

The adolescent sample population included 72.4% female participants, with a mean age of 13.5 (±2.10) (n=29). The sample included a variety of race/ethnicities including: Hispanic/Latino; (34.5%), Black or African American (31%), Non-Hispanic White (27.6%) and other (6.9%). Fifty-two percent of the sample completed ≥ 3 12-week program cycles and thus was involved with the program for ≥ 36 weeks (Appendix I, Table 1). A detailed description of mean pre-program BMI, mean percent BMI change, mean pre-program percent body fat, and mean percent body fat change according to gender, age, race/ethnicity, and number of 12-week cycles completed is also described (Appendix I, Table 2).

Adolescents who participated in all program components (n=28) had a mean pre-program BMI of 39.66 ± 8.78 and mean pre-program percent body fat of 48.49 ±8.82 (Appendix I, Table 3a). Paired t-test analyses demonstrated significant reductions in percent body fat (p=0.012) and borderline significant reduction in BMI (p=0.055) (Appendix I, Table 3b). When stratified by quartiles for age, paired t-tests showed significant reductions for starting and ending percent body fat (age quartile 2: p=0.030) as well as significant reductions in starting BMI among older adolescents (quartile 3: p=0.019 and quartile 4: BMI: p=0.014) (Appendix I, Table 3b).

On average, females completed a greater number of 12-week program cycles compared with males (3.14 program cycles ± 1.82 versus 2.63 program cycles ± 2.20, respectively, p=0.524, t= -0.646) (Appendix I, Table 4a). Compared with adolescents 11-13 years old, adolescents 14-17 years old completed a greater mean number of 12-week program cycles (3.25 ±1.96 versus 2.82 ±1.91, respectively, p=0.563, t= -0.586) (Appendix I, Table 4b). Non-Hispanic Whites completed fewer 12-week program cycles on average compared to all other race/ethnicities combined (2.51 ± 1.60 versus 3.19 ± 2.02, respectively, p=0.394, t= -0.867) (Appendix I, Table 4d). However, for all aforementioned comparisons, number of completed 12-week program cycles did not differ significantly according to adolescent participant gender, age, or race/ethnicity (Appendix I, Tables 4a-4e).

Similarly, BMI change was not significantly different according to gender, age, or race/ethnicity (Appendix I, Tables 5a-5e). While change in percent body fat did not differ by participant gender or age (Appendix I, Table 6a-6c), or when comparing individual race/ethnicities, compared to Non-Hispanic Whites, all other race/ethnicities showed a significantly greater reduction in percent body fat (p=0.025) (Appendix I, Table 6d-6e). And, following continuous multiple linear regression analyses, gender, age, race/ethnicity, and number

of 12-week program cycles completed were not significantly associated with BMI change or percent body fat change (Appendix I, Tables 7a and 7b).

Likert scale analysis using Fisher's t-test showed non-significant differences between lower and higher completers (Appendix I, Tables 8a-8c). Correlation of subscale scores with study outcomes (BMI change, percent body fat change, and number of 12-week cycles completed) also showed non-significant associations (Appendix I, Table 9). However, following correlation of raw Likert scale original scores with study outcomes, several survey items showed significant or borderline significant associations with study outcomes. Reduction in adolescent BMI was significantly associated with higher adolescent ratings of "the instructors were supportive" ($p=0.046$) and borderline significantly associated with higher adolescent ratings of "the program was easy to understand" ($p=0.050$) (Appendix I, Table 10a). Additionally, reduction in adolescent body fat was significantly associated with higher ratings of "the instructors were supportive" ($p=0.041$) and "the instructors were respectful" ($p=0.038$), as well as borderline significantly associated with "the instructors were trustworthy" ($p=0.054$) (Appendix I, Table 10b). Moreover, the number of 12-week program cycles completed was borderline significantly associated with "the program was easy to understand" ($p=0.056$) (Appendix I, Table 10c). Finally, top-rated factors that adolescents perceived to be most important included: "the program visits were fun and not boring" (24.1%), "the instructors were supportive" (13.8%), and "I felt comfortable while exercising" (10.3%) (Appendix II, Figure 1).

For the qualitative analysis, unedited responses to open-ended adolescent survey questions and corresponding salient themes are presented (Appendix III: Tables 13a/b - Tables 14a/b). A positive participant-participant relationship was identified by several adolescents as an additional important factor for program completion that was not listed within the survey.

Adolescents specifically noted having a friendship/bond with other participants, having support from other participants being in the same situation, and/or having the opportunity to exercise with other participants as important factors (Appendix III: Tables 13a-13b).

- "*The supportiveness between the kids my age taking part in the program and the bond that should have sparked from it is very important to me.*"
- *"I made so many friends. I felt like part of a family there."*
- "*I made friends and I felt like people like me*"
- "*The fact that the other people around me are in the same situation as me."*
- *[Another factor important to me was]: that I could exercise with other kids*"

When asked about personal factors that adolescents felt helped them to complete the program, being motivated/determined/hopeful and the importance of having family support emerged (Appendix III: Tables 14a and 14b).

- *"I feel that my hope and determination was the thing that got me through the program."*
- *"My determination and desire to be healthier and fit."*
- *"Being determined. Using information they taught me."*
- *"I knew I could change for myself."*
- *Being supported by my family, being motivated to be healthy."*
- *"Family support. I was highly motivated."*

Instructor Survey

A total of 10 instructors participated in the survey (response rate: 71.4%) (Appendix I: Table 11). Instructor survey participants were 100% Non-Hispanic White females, between the age categories of 18-54, and including 50% undergraduate students (Table 11). Instructor roles

overlapped and ranged from supervisor (10%), program coordinator (50%), nutrition educator (30%), exercise specialist (30%), and parent class facilitator (10%) (Appendix I: Table 11). Instructors were involved with the program for a mean of 4.6 years (±5.79 years), with involvement ranging from 2 months to 17 years (Appendix I: Table 11). Fifty percent (n=5) of instructors rated program weight management strategies as a top-three important program factor important for adolescent participant engagement (Appendix I: Table 12). Program convenience, parental involvement in the program, and positive instructor-participant relationships were ranked in the top three by 40% (n=4) of instructors, and positive participant-parent relationships and positive participant-participant relationships were ranked in the top three by 30% (n=3) of instructors (Appendix I: Table 12).

Unedited responses to open-ended instructor survey questions and corresponding salient themes are also presented (Tables 15a/b- Tables 20a/b). The most common factors not listed within the instructor survey that instructors felt were important for adolescent participant engagement included having an interactive/enjoyable curriculum and providing participants with positive reinforcement, feedback and/or praise (Tables 15a-15b).

- *"Hands on and interactive games to help to engage the participants in learning."*
- *"That the participants have fun and are surrounded by positive reinforcement."*
- *"It is important to have the participants feel that they are being acknowledged for their hard work to make a better choice in their eating and movement habits…for that reason we create incentives to keep the children engaged and motivated, recognizing the member's hard work through other means of encouragement (praise for accomplishment, certificates and high-fives for example) are motivational techniques"*

Commonly reported barriers by instructors included limited transportation and limited financial resources for program cost and recommended healthy foods. The impact of living within an inner-city environment was also highlighted (Tables 15a and 15b).

- *"Many of the children live in the city which can lead to difficulty in attendance because several families are coming by bus or taxi and therefore can either not afford transportation costs or cannot find bus times to match program times."*
- *"Cost is two-fold: Cost of the actual program and cost of healthier food options. Even with New Haven initiatives that allow food stamps at farmers markets, the cost is substantially more for healthier foods. Transportation is a big factor as well. The school is not convenient to a bus route and is located in a more affluent section of the city."*
- *"The families of the participants in the program may also lack knowledge of the importance of a healthier lifestyle or may not have the resources to always afford a better choice. Living in the inner city may also have an impact on the amount of outside activities."*

Instructors reported a variety of unique program strengths, including the program's inclusion of parental classes/use of a multifaceted family-based approach, caring instructors/instructor-participant bond, and the opportunity for participants to support one another (Table 16a-16b).

- *"Inclusion of parental classes that give parents tools to be good role models and to feel empowered to help their family."*
- *"The effort put forth in fostering a whole family approach in developing new positive relationship with food and exercise."*

- *"The staff that was involved with the program the paid and the volunteers that provided their time. They were all interested in the participants' wellbeing. They cared about the success of each person. It is a great opportunity for adolescents to help encourage each other as well."*
- *"I feel that the unique strengths about Bright Bodies program is how as instructors we can form unique and special bonds with the children. That is my favorite part about the program! It makes me feel good about myself inside."*

Instructors noted difficulty with decreased participant cooperation and commonly reported it as a challenge in program implementation. Other challenges instructors reported for program implementation included lack of program funding resources as well as lack of having a designated program facility (Table 17a-17b).

- *"Behavior and listening with the participants are very challenging. Putting their cell phones away is very hard."*
- *"…due to the lack of funding for our program we are unable to have a permanent location. The lack of funding also makes it difficult to pursue other research ventures, have employed staff rather than volunteers and purchase updated equipment for the exercise classes."*
- *"Lack of place to call "home": Bright Bodies would benefit greatly from having a place of their own. It is frustrating to share the gymnasium with other programs (time conflicts are frequent) and to store equipment/scale in a storage closet (or our own cars!) and drag it all out twice a week. It would be nice to hang up educational material and leave it on wall."*

A prominent theme that emerged for how the program could best be modified to meet the needs of participants and families and to promote patient engagement was to increase program funding/insurance coverage to offset participation and program costs.

- *"Bright Bodies staff could find a donor(s) to help us run the program as it should be operated and/or insurance companies could cover the service, allowing us to generate more revenue and meet the resource needs to improve our services."*
- *"Better insurance participation will help the lower income families. This will eliminate a barrier for those on state insurance (Husky)."*
- *"More funding, participants would have to only pay for program materials and not for a program cost (Like a Bright Bodies scholarship for participants)."*

When asked to share additional thoughts instructors felt were important, instructors noted that the Bright Bodies program is a very positive/rewarding experience for both participants and instructors. Other opinions highlighted the program's ability to flourish despite limited financial resources, and underscored the need for increased university involvement with the local community surrounding obesity prevention efforts (Tables 18a-18b).

- *"It was a very positive experience from the staff to the participants. There were many participants that came back session after session to learn more and participate in the program."*
- *"Watching the kids faces when they lose weight and having fun playing the games it just makes your night. Even parents love seeing their children laugh and smile while they are [there]. The participants make friends with each other so it is another support for them."*
- *"Despite the obstacles associated with hosting a program without proper funding, the effective delivery of weekly program sessions and the dedicated student-volunteers and*

staff has allowed Bright Bodies to flourish into a 16-years and counting success story that remains to be an opportunity for families in the New Haven area."

- **"***The university needs to take a more active role in its community to help reduce adiposity in children and consequently curtail diabetes and other obesity-related diseases."*

Field Note Observations

Through program field note observations including exercise, nutrition/behavior modification, and parental class components, a variety of themes emerged. Across adolescent exercise, nutrition, and parent class components, instructors offered a great deal of flexibility to participants and parents, including free-flowing entry and departure from activities as well as topic crossover during discussions, depending on the participants/parents' needs and interests. Instructors promoted teamwork and positive-relationship building during adolescent exercise activities, with activities that required participants to align with other participants or instructors. Adolescents and parents found support from one another during adolescent nutrition and parent-behavioral modification classes by sharing common struggles and through group problem solving. Additionally, through program observations, a parental perspective was offered related to participant engagement:

- *"The kids really look forward to it each week. My son gets upset if he has to miss the program because of a snow day. He is very happy because he sees the results and because he gets a chance to mingle with other children, so he's not the only one who feels bad about their weight and they are all trying to succeed together."*

DISCUSSION

Summary of findings

By directly assessing perspectives among adolescent completers of the program, this study allowed for increased insight into factors that aided program completion among this high-risk, inner-city population. Of note, over half of this diverse, majority female convenience sample of adolescents completed the program several times, with involvement spanning over ≥ 3 program cycles (≥ 36 weeks). Consistent with previous studies of the Bright Bodies program, adolescents had significant and borderline significant improvements in weight outcomes, with the greatest reductions in BMI seen among older adolescents. However, older adolescents also completed more programs on average as compared to younger adolescents and other factors could be contributing to differences in weight loss, such as gender differences or differences in physiological development during this period. Moreover, while significant reductions in starting and ending percent body fat were seen for the entire adolescent sample, significant reductions in BMI but not percent body fat were seen for older versus younger adolescents. While this finding is somewhat surprising, it should be noted that the correlations between BMI and body fat are not 1:1 and also differ according to gender, with the correlation being much lower in boys than girls (Kaplowitz, 2008).

Given that obesity tends to disproportionately affect racial/ethnic minorities, it is also surprising that, in this adolescent sample, Non-Hispanic Whites had a higher starting BMI as compared to all other race/ethnicities. Non-Hispanic Whites also saw significantly less reduction in percent body fat compared to all other race/ethnicities, however, this group also completed fewer programs compared to their other racial/ethnic counterparts (although this difference was

non-significant). Accordingly, while these findings are contrary to expectations based on national prevalence data, these results may reflect the study-specific sample.

Moreover, while adolescent Likert scale survey responses did not show significant differences based on higher versus lower program completers, interestingly, significant and borderline significant correlations were seen between Likert scales scores and weight outcomes. Specifically, positive changes in adolescent weight outcomes were significantly correlated with higher adolescent ratings of the instructors being supportive and respectful, and were borderline significantly associated with higher adolescent ratings of instructors being trustworthy as well as the program being easy to understand.

The value that adolescents placed on the relationship with instructors was further emphasized by adolescents' top-rated important factors, with approximately 14% of participants rating the instructors being supportive as the most important factor for their program completion. Based on previously reported clinician, parental, and adolescent perspectives emphasizing the importance of fun, engaging curricula, it is not surprising that nearly 25% of adolescent rated visits being fun and not boring as the most important factor for completion. However, unlike previous findings, adolescent comfort while exercising also emerged as a top important factor for their program completion. Moreover, while the adolescent survey questions focused on program strategies/components, participant comfort in participation, as well as instructor-related factors, adolescents underscored having a strong participant-participant bond as an additional important program factor and highlighted personal factors that they felt helped them complete the program including their motivation/determination as well as having family support. Interestingly, the ability of the program to cultivate a strong participant-participant bond was also highlighted

among instructor survey responses and also emerged as theme through program observations and parental insight.

Given that adolescents highly valued positive participant-instructor relationships, surveying Bright Bodies instructors allowed for additional and complementary perspectives into this relationship, as well as other factors that serve as promoters and barriers for engagement. While not as diverse as the adolescent sample, the instructor sample comprised a wide-range of positions spanning administrative, exercise education, nutrition education, and/or parent class facilitator roles, with many instructors serving in overlapping positions. Like adolescents, instructors placed a strong emphasis on the importance of engaging program activities. However, unlike adolescent program participants, less than half of instructors ranked a positive instructor-participant relationship as a top three factor for program engagement—ranking program convenience and parental involvement of higher importance.

Through open-ended instructor responses, it was evident that instructors felt that the program's multi-faceted, interactive, and family-based approach was a large contributor to the program's success. Instructors also emphasized the importance of providing positive reinforcement and praise to adolescents for accomplishments—perhaps serving as a means of supporting the instructor-participant bond as valued by adolescents. Echoing previously reported barriers to engagement within the literature, Bright Bodies instructors reported transportation, cost, lack of insurance coverage, and family demands as being significant barriers to participation, with particular challenges related to living within an inner-city environment.

Despite these challenges, as noted through program observation, Bright Bodies allows for flexible attendance—which may serve to aid families' participation. Program flexibility was prominent, with families able to join up to 4 weeks into a program cycle, many parents and

children flowing freely in and out of session activities as needed, and attendance at each sessions highly encouraged but not required. Interestingly, the importance of flexible scheduling has been incorporated in a separate family-based intervention arena, with the intent of allowing for a built-in understanding of the complex stressors faced by many inner-city families and to create ease of attendance (Murphy et al., 2015). Instructors felt strongly that, looking forward, increased program funding would be essential for supporting the program's growth and success, and especially emphasized the need for a program-designated facility to provide the best program delivery. And, in line with the community-based framework of this intervention, a call for greater local stakeholder involvement with the community was also emphasized.

Limitations

Several limitations of this study should be noted. First, study finding generalizability, variability, and result analysis are limited given the relatively small sample sizes and convenience sampling for both the adolescent and instructor surveys. Accordingly, while this study aims to inform program-delivery of other pediatric obesity programs, the perspectives presented herein are specific to the needs of those involved with the Bright Bodies program and thus generalizability of findings may be limited in other settings. Additionally, although the adolescent survey instrument used herein was adapted from an existing survey instrument assessing parent- and adolescent-reported barriers in this setting, (Brennan et al., 2012), no validated tool for assessing adolescent perspectives was discovered for the purposes of this study. Further, while this study focused on retention of adolescents in the Bright Bodies program, the scope of this project did not include factors impacting adolescent/family recruitment into the program or long-term maintenance of program-goals following discontinuation of program involvement. Moreover, while perspectives among non-completers

of the program would proven very valuable, obtaining these perspectives was not practical or feasible in this setting, given that the majority of surveys (86%) were administered in-person to those currently engaged in the program. Surveys were mailed to those participants with known high program completion, and return of mailed surveys among non-completers would have proven difficult and would have relied on participants to recall the number of visits completed, given that the program currently does not tracks this information. Finally, because surveys were cross-sectional, continued inquiry in this area would greatly benefit from longitudinal assessment of perspectives as well as more in-depth research methods such as focus groups or semi-structured interviews inclusive of adolescents, parents, instructors and/or other community stakeholders.

CONCLUSIONS

Through this descriptive study, adolescent, instructor, and parent perspectives offered unique insight into various weight management program-delivery related factors. Adolescents not only expressed the importance of engaging activities, but also highly valued the ability to form relationships with both other participants and instructors. Instructors also underscored the importance of these aforementioned factors, noting their role in adolescent motivation through the use of positive reinforcement and feedback. The emphasis on the instructor-participant relationship was especially emphasized by adolescents, and remarkably, was also underscored by observed correlations between higher adolescent rankings of instructor-related factors and significant improvements in weight outcomes.

While this inner-city population faces significant barriers related to transportation, program cost, and outside familial demands, over half of this convenience sample was involved with the program for ≥ 36 week time period. Various aspects of the Bright Bodies program

structure may have aided engagement, such as the program's flexible scheduling, subsidized cost options, and group-setting where adolescents and parents can form bonds with one another. The program additionally allows participants to continuously re-enroll in 12-week program cycles—offering the potential for strengthening intervention sustainability, improvements in weight outcomes, as well as strong bonds with participants and instructors. These types of program-related factors as well as the multi-faceted structure of the Bright Bodies program support the program's ability to carry out a family-based intervention approach—which was noted a program strength and important factor for completion by both adolescents and instructors.

Implications

Given the paucity of studies assessing program delivery-related factors in pediatric obesity treatment programs—and particularly how these factors relate to both participant engagement and weight outcomes—this study serves to add substantially to the literature. Additionally, because a significant degree of heterogeneity exists among pediatric obesity program structures, inquiry into program process measures can serve to direct future program strategies. Moreover, while there are limited studies that report on adolescent perspectives related to their engagement with an obesity treatment program, this study directly engages adolescents in this process. Although perspectives from clinicians, instructors, parents, and community stakeholders are essential in the conversation surrounding attrition from pediatric obesity programs, perspectives of the adolescent participants themselves should similarly be valued.

Of note, during the developmental period of adolescence, there is an increased desire for greater independence and ability to control one's behavior (Dahl, 2004; Scherf, Behrmann, &

Dahl, 2012). Importantly, adolescents have expressed a desire for more active participation in their own health promotion intervention process (Davison, Share, Hennessy, & Knox, 2015; Smith et al., 2014). Rather than being passive recipients of such of services, adolescents have called for a greater sense of personal agency (Davison et al., 2015). While personal agency may be gained through interactive learning techniques (Smith et al., 2014), increased personal agency can also be promoted through opportunities for adolescents to provide input related to their perceptions of these services. And notably, personal agency—which is rooted within social cognitive theory—can directly influence one's efficacy in carrying out a behavior such as healthy eating (Davison et al., 2015), and thus—in addition to increasing engagement—could also serve to advance adolescents' healthy lifestyle goals.

Recommendations

To aid in future studies in this arena, validity studies should be carried out for survey instruments assessing perceptions of program-related factors within the pediatric obesity treatment setting. Moreover, given that strong instructor-participant and participant-participant bonds emerged as important factors for adolescent engagement in this pediatric weight management program, future weight management strategies should evaluate the impact of consistent participant and instructor relationships on the adolescent engagement. As noted by the 2011 Cochrane review of pediatric obesity programs, evaluation of these programs needs to be extended to capture process and implementation factors, and efforts should be embedded in wide-reaching sectors such as health and educational systems to allow for sustainable impacts (Waters et al., 2011). This is especially important given that programs such as Bright Bodies may not be available to numerous pediatric populations in need. Such additional settings could

include school-based health centers (SBHCs), where students have access to services such primary care, mental health counseling, as well as healthy eating and active living education (*School-Based Health Alliance. About School-Based health Centers*, 2016). Given that SBHCs are also settings where adolescents have consistent relationships with clinicians, these arenas could be used for future implementation of evidence-based pediatric weight management programs. Another possible care arena would be group-based obesity care, drawing from the Centering Pregnancy prenatal care model, which provides care in a group-based environment rather than individual clinic room (Trotman et al., 2015). Notably, in the adolescent population, this model versus traditional care has shown increased visit compliance as well an increase in uptake of health-related behaviors such as appropriate weight gain, breastfeeding, and highly effective contraception use (Trotman et al., 2015). Adapting this model for adolescents with obesity could see similar health benefits and would be an opportunity for providing a consistent-clinician relationship, family support, as well as relationship building with other adolescents. Further, as reiterated by Bright Bodies instructors, obesity prevention and treatment efforts should be supported through increased funding and expanded insurance coverage for such services. Additionally, because adolescents also highly valued comfort while exercising during the Bright Bodies program, future studies should explore this intriguing finding. Lastly, in the future implementation and evaluation of pediatric obesity programs as well as other programs aimed at improving the health of this population, the opinions of teens themselves should be sought out—as illustrated by the valuable insight that this population can provide for such efforts.

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Appendix I

Table 1. Description of total adolescent survey sample (n=29).

Characteristic	**N (%)**
Gender	
Male	8 (27.6)
Female	21 (72.4)
Age	
11	6 (20.7)
12	6 (20.7)
13	5 (17.2)
14	2 (6.9)
15	1 (3.4)
16	7 (24.1)
17	2 (6.9)
Race/Ethnicity	
Non-Hispanic White	8 (27.6)
Hispanic/Latino	10 (34.5)
Black or African American	9 (31.0)
Other	2 (6.9)
Number of 12 week programs completed	
1	9 (31.0)
2	5 (17.2)
3	5 (17.2)
4	3 (10.3)
5	1 (3.4)
>5	6 (20.7)

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Appendix I

Table 2: Description of adolescent survey sample used in anthropomorphic analyses including mean pre-program and changes in BMI and Percent Body Fat according to demographic factors (n=28).

Characteristic	N (%)	Mean Pre-program BMI (SD)	Mean percent change in BMI (SD)	Mean Pre-program Percent Body Fat (SD)	Mean percent change in percent body fat (SD)
Gender					
Male	8 (28.6)	38.94 (9.62)	-5.27% (4.92%)	51.85 (12.93)	-11.60% (16.33%)
Female	20 (71.4)	39.95 (8.67)	-2.63% (7.69%)	47.15 (6.58)	-5.60% (12.62%)
Age					
11	6 (21.4)	33.38 (3.00)	-1.07% (13.3%)	43.32 (5.94)	-5.64% (14.1%)
12	6 (21.4)	39.70 (9.77)	-4.08% (6.05%)	53.18 (12.20)	-7.00% (7.17%)
13	4 (14.3)	40.48 (5.29)	-1.89% (1.63%)	48.85 (5.31)	-1.77% (5.80%)
14	2 (7.1)	45.65 (17.18)	-4.56% (5.46%)	43.05 (11.10)	-25.55% (30.8%)
15	1 (3.6)	57.90 (0.00)	-3.76% (0.00%)	64.00 (0.00)	-5.19% (0.00%)
16	7 (25.0)	39.85 (9.69)	-4.60% (5.00%)	48.34 (7.92)	-9.48% (17.2%)
17	2 (7.1)	39.85 (8.78)	-5.70% (3.04%)	47.45 (2.61)	-4.80% (5.33%)
Race/Ethnicity					
Non-Hispanic White	8 (28.6)	44.16 (10.00)	-1.33% (11.00%)	49.75 (7.85)	+1.72% (11.4%)
Hispanic/Latino	10 (35.7)	36.01 (8.40)	-4.21% (5.38%)	44.8 (9.32)	-1.54% (1.61%)
Black or African American	8 (28.6)	40.86 (7.52)	-4.43% (4.81%)	52.7 (9.06)	-5.89% (8.53%)
Other	2 (6.9)	35.10 (1.27)	-3.22% (3.76%)	48.49 (8.82)	-8.59% (5.31%)
Number of 12 week cycles completed					
1	8 (28.6)	38.91 (10.48)	-3.69% (2.30%)	49.04 (10.37)	-9.83% (13.5%)
2	5 (17.9)	35.52 (5.43)	-3.25 (11.99%)	46.92 (7.46)	+1.60% (14.5%)
3	5 (17.9)	43.94 (8.60)	-6.79% (6.96%)	52.04 (11.13)	-4.01% (7.30%)
4	3 (10.7)	41.23 (9.58)	-2.84% (4.12%)	45.20 (0.00)	-10.50% (11.00%)
5	1 (3.6)	39.00 (0.00)	-1.04% (0.00)	44.33 (5.66)	+4.84% (17.55%)
>5	6 (21.4)	39.87 (10.25)	-6.32% (5.61%)	48.49 (8.82)	-14.56% (13.74%)

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Appendix I

Table 3a. Pre- to post program changes in adolescent BMI and percent body fat (paired t-test) (n=28).

	Pre-program mean (SD)	Post-program mean (SD)	Mean difference	t	p
BMI	39.66 (8.78)	38.57 (9.01)	1.09	2.009	**0.055**†
Percent Body Fat	48.49 (8.82)	46.03 (10.38)	2.46	2.691	**0.012***

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

*designates significant at the 0.05 level
†designates borderline significant at the 0.05 level

Table 3b. Pre- to post program changes in BMI and percent body fat according to adolescent age percentile (paired t-test) (n=28).

	Pre-program mean (SD)	Post-program mean (SD)	t	p
BMI by age percentile				
1st quartile	33.38 (2.98)	33.70 (6.92)	-0.140	0.894
2nd quartile	39.70 (9.77)	38.45 (10.71)	1.480	0.199
3rd quartile	44.44 (10.22)	43.29 (10.31)	3.175	**0.019***
4th quartile	40.10 (8.18)	38.23 (7.44)	3.151	**0.014***
Percent body fat by age percentile				
1st quartile	43.32 (5.94)	41.30 (5.01)	0.794	0.463
2nd quartile	53.18 (12.16)	50.08 (12.84)	2.999	**0.030***
3rd quartile	49.36 (9.15)	47.59 (13.37)	0.964	0.372
4th quartile	48.14 (6.93)	45.26 (8.90)	1.519	0.167

*designates significant at the 0.05 level.

Appendix I

Table 4a. Independent t-test for number of 12-week program cycles completed according to adolescent gender (n=29).

Gender	N (%)	Mean	SD	Mean difference (SE difference)	t	p
Male	8 (27.6)	2.63	2.20	-0.518 (0.801)	-0.646	0.524
Female	21 (72.4)	3.14	1.82			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 4b. Independent t-test for number of 12-week program cycles completed according to adolescent age (n=29).

Age	N (%)	Mean	SD	Mean difference (SE difference)	t	p
11-13	17 (58.6)	2.82	1.91	-0.427 (0.728)	-0.586	0.563
14-16	12 (41.4)	3.25	1.96			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 4c. One-way ANOVA for number of 12-week program cycles completed according to adolescent age (n=29).

Age	N (%)	Mean	SD	95% CI	Sum of Squares	df	Mean Square	F	p
11	6 (20.7)	2.50	1.87	(0.54, 4.46)	28.25	6	4.71	1.405	0.257
12	6 (20.7)	2.67	1.86	(0.71, 4.62)					
13	5 (17.2)	3.40	2.30	(0.54, 6.26)					
14	2 (6.9)	6.00	0.00	(6.00, 6.00)					
15	1 (3.4)	1.00	---	---					
16	7 (24.1)	2.57	1.27	(1.40, 3.75)					
17	2 (6.9)	3.00	0.354	(2.27, 3.73)					

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 4d. Independent t-test for number of 12-week program cycles completed according to adolescent race/ethnicity (n=29).

Race/ethnicity	N (%)	Mean	SD	Mean difference (SE difference)	t	p
Non-Hispanic White	8 (27.6)	2.50	1.60	-0.691 (0.796)	-0.867	0.394
All other race/ethnicities	21 (72.4)	3.19	2.02			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 4e. One-way ANOVA for number of 12-week program cycles completed according to adolescent race/ethnicity (n=29).

Race/ethnicity	N (%)	Mean	SD	95% CI	Sum of Squares	df	Mean Square	F	p
Non-Hispanic White	8 (27.6)	2.50	1.60	(1.16, 3.84)	12.678	3	4.559	1.291	0.299
Hispanic/Latino	10 (34.5)	3.30	2.11	(1.79, 4.81)					
Black/AA	9 (21.0)	3.56	1.94	(2.06, 5.05)					
Other	2 (6.9)	1.00	1.90	(2.27, 3.72)					

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Appendix I

Table 5a. Independent t-test for BMI change according to adolescent gender (n=28).

Gender	N (%)	Mean	SD	Mean difference (SE difference)	t	p
Male	8 (28.6)	-0.05	0.05	-0.026 (0.030)	-0.867	0.378
Female	20 (71.4)	-0.03	0.08			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 5b. Independent t-test for BMI change according to participant age (n=28).

Age	N (%)	Mean	SD	Mean difference (SE difference)	t	p
11-13	16 (57.1)	-0.02	0.09	0.023 (0.027)	0.846	0.405
14-17	12 (42.9)	-0.05	0.04			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 5c. One-way ANOVA for BMI change according to adolescent participant age (n=28).

Age	N (%)	Mean	SD	95% CI	Sum of Squares	df	Mean Square	F	p
11	6 (21.4)	-0.01	0.13	(-0.15, 0.13)	0.007	6	0.001	0.186	0.977
12	6 (21.4)	-0.04	0.06	(-0.10, 0.23)					
13	4 (14.3)	-0.02	0.02	(-0.04, 0.01)					
14	2 (7.1)	-0.05	0.05	(-0.54, 0.44)					
15	1 (3.6)	-0.04	---	---					
16	7 (25.0)	-0.06	0.05	(-0.09, 0.00)					
17	2 (7.1)	-0.06	0.03	(-0.33, 0.22)					

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 5d. Independent t-test for BMI change according to adolescent race/ethnicity (n=28).

Race/ethnicity	N (%)	Mean	SD	Mean difference (SE difference)	t	p
Non-Hispanic White	8 (28.6)	-0.02	0.11	0.029 (0.029)	0.974	0.339
All other	20 (71.4)	-0.04	0.04			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 5e. One-way ANOVA for BMI change according to adolescent race/ethnicity (n=28).

Race/ethnicity	N (%)	Mean	SD	95% CI	Sum of Squares	df	Mean Square	F	p
Non-Hispanic White	8 (28.6)	-0.01	0.11	(-0.11, 0.08)	0.005	3	0.002	0.307	0.820
Hispanic/Latino	10 (35.7)	-0.04	0.05	(-0.08, 0.00)					
Black/AA	8 (28.2)	-0.04	0.05	(-0.08, 0.00)					
Other	2 (7.14)	-0.03	0.04	(-0.37, 0.31)					

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Appendix I

Table 6a. Independent t-test for percent body fat change according to adolescent gender (n=28).

Gender	N (%)	Mean	SD	Mean difference (SE difference)	t	p
Male	8 (28.6)	-0.12	0.16	-0.060 (0.057)	-1.047	0.305
Female	20 (71.4)	-0.06	0.13			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 6b. Independent t-test for percent body fat change according to adolescent age (n=28).

Age	N (%)	Mean	SD	Mean difference (SE difference)	t	p
11-13	16 (57.1)	-0.05	0.10	0.050 (0.053)	0.943	0.355
14-17	12 (42.9)	-0.10	0.18			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 6c. One-way ANOVA for percent body fat change according to adolescent participant age (n=28).

Age	N (%)	Mean	SD	95% CI	Sum of Squares	df	Mean Square	F	p
11	6 (21.4)	-0.06	0.14	(-0.20, 0.09)	0.100	6	0.017	0.856	0.543
12	6 (21.4)	-0.07	0.07	(-0.15, 0.01)					
13	4 (14.3)	-0.02	0.06	(-0.11, 0.07)					
14	2 (7.1)	-0.25	0.31	(-3.03, 2.52)					
15	1 (3.6)	0.05	---	---					
16	7 (25.0)	-0.09	0.17	(-0.25, 0.06)					
17	2 (7.1)	-0.05	0.05	(-0.53, 0.43)					

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 6d. Independent t-test for percent body fat change according to adolescent race/ethnicity (n=28).

Race/ethnicity	N (%)	Mean	SD	Mean difference (SE)	t	p
Non-Hispanic White	8 (28.6)	0.02	0.11	0.126 (0.053)	2.382	0.025*
All other	20 (71.4)	-0.11	0.12			

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.
*significant at the p<0.05 level.

*designates significant at the 0.05 level.

Table 6e. One-way ANOVA for percent body fat change according to adolescent participant race/ethnicity (n=28).

Race/ethnicity	N (%)	Mean	SD	95% CI	Sum of Squares	df	Mean Square	F	p
Non-Hispanic White	8 (28.6)	0.02	0.11	(-0.15, 0.13)	0.133	3	0.044	2.818	0.061
Hispanic/Latino	10 (35.7)	-0.15	0.16	(-0.10, 0.23)					
Black/AA	8 (28.6)	-0.06	0.09	(-0.04, 0.01)					
Other	2 (7.1)	-0.09	0.05	(-0.54, 0.44)					

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Appendix I

Table 7a. Multiple linear regression assessing the relationship between BMI change and adolescent gender, age, race/ethnicity, and number of 12-week program cycles completed (n=28).

	Beta (SE)	Std error	t	p
Gender	0.053	0.032	1.653	0.112
Age	-0.009	0.007	-1.395	0.176
Race/ethnicity	-0.010	0.009	-1.061	0.300
Number of cycles completed	-0.010	0.007	-1.370	0.184

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 7b. Multiple linear regression assessing the relationship between body fat change with adolescent gender, age, race/ethnicity, and number of 12-week program cycles completed (n=28).

	Beta (SE)	Std error	t	p
Gender	0.104	0.063	1.645	0.114
Age	-0.012	0.013	-0.924	0.365
Race/ethnicity	-0.023	0.018	-1.241	0.227
Number of cycles completed	-0.017	0.014	-1.222	0.234

Numbers may not sum to totals due to missing data, and column percentages may not sum to 100% due to rounding.

Table 8a. Survey responses related to program components/strategies according to completer type (n=29) (lower completer: 1-3 program cycles completed; higher completer: ≥ 4 program cycles completed).

Survey Item	Total N=29	Completer Type: Lower Completers (N =19) N (%)	Completer Type: Higher Completers (N = 10) N (%)	p[£]
Q8: The program visits were fun and not boring				0.267
Strongly agree or agree	26	18 (94.7)	8 (80.0)	
Undecided, disagree or strongly disagree	3	1 (5.3)	2 (20.0)	
Q10: The program was easy to understand				0.345
Strongly agree or agree	28	19 (100.0)	9 (90.0)	
Undecided, disagree or strongly disagree	1	0 (0.0)	1 (10.0)	
Q11: The program materials were helpful				0.267
Strongly agree or agree	26	18 (94.7)	8 (80.0)	
Undecided, disagree or strongly disagree	3	1 (5.3)	2 (20.0)	
Q12: The program visits worked with my school schedule				0.345
Strongly agree or agree	28	19 (100.0)	9 (90.0)	
Undecided, disagree or strongly disagree	1	0 (0.0)	1 (10.0)	
Q13: The program visits were not too long				0.633
Strongly agree or agree	24	15 (78.9)	9 (90.0)	
Undecided, disagree or strongly disagree	5	4 (21.1)	1 (10.0)	

Numbers may not sum to total due to missing data, and column percentages may not sum to 100% due to rounding.

[£] P-value for fisher's exact test.

Table 8b: Adolescent survey responses related to participant comfort according to completer type (n=29) (lower completer: 1-3 program cycles completed; higher completer: ≥ 4 program cycles completed).

		Completer Type		
Survey Item	**Total N=29**	**Lower Completers (N =19) N (%)**	**Higher Completers (N = 10) N (%)**	**p[£]**
Q9: I felt that I could achieve the healthy lifestyles goals				1.000
Strongly agree or agree	28	18 (94.7)	10 (100.0)	
Undecided, disagree or strongly disagree	1	1 (5.3)	0 (0.0)	
Q14: I felt comfortable while exercising*				0.592
Strongly agree or agree	25	17 (89.5)	8 (80.0)	
Undecided, disagree or strongly disagree	4	2 (10.5)	2 (20.0)	
Q15: I felt comfortable participating during the nutrition lessons				0.532
Strongly agree or agree	27	17 (89.5)	10 (100.0)	
Undecided, disagree or strongly disagree	2	2 (10.5)	0 (0.0)	
Q16: I felt comfortable talking about myself				0.694
Strongly agree or agree	18	11 (57.9)	7 (70.0)	
Undecided, disagree or strongly disagree	11	8 (42.1)	3 (30.0)	
Q17: I felt comfortable while I was being weighed				1.000
Strongly agree or agree	21	14 (73.7)	7 (70.0)	
Undecided, disagree or strongly disagree	8	5 (25.3)	3 (30.0)	
Q18: I felt like there was hope for change				1.000
Strongly agree or agree	27	18 (94.7)	9 (90.0)	
Undecided, disagree or strongly disagree	2	1 (5.3)	1 (10.0)	

Numbers may not sum to total due to missing data, and column percentages may not sum to 100% due to rounding.

[£] P-value for fisher's exact test.

Table 8c: Adolescent survey responses related to instructor-related factors according to completer type (n=29) (lower completer: 1-3 program cycles completed; higher completer: ≥ 4 program cycles completed).

Item	Total N=29	Completer Type: Lower Completers (N =19) N (%)	Completer Type: Higher Completers (N = 10) N (%)	p[£]
Q19: It was easy to understand the instructors				0.111
Strongly agree or agree	27	19 (100.0)	8 (80.0)	
Undecided, disagree or strongly disagree	2	0 (0.0)	2 (20.0)	
Q20: The instructors were knowledgeable				---
Strongly agree or agree	29	10 (100.0)	19 (100.0)	
Undecided, disagree or strongly disagree	0	0 (0.0)	0 (0.0)	
Q21: The instructors were friendly				0.345
Strongly agree or agree	28	19 (100.0)	9 (90.0)	
Undecided, disagree or strongly disagree	1	0 (0.0)	1 (10.0)	
Q22: The instructors were respectful				---
Strongly agree or agree	29	19 (100.0)	10 (100.0)	
Undecided, disagree or strongly disagree	0	0 (0.0)	0 (0.0)	
Q23: The instructors understood me				0.267
Strongly agree or agree	26	18 (94.7)	8 (80.0)	
Undecided, disagree or strongly disagree	3	1 (5.3)	2 (20.0)	
Q24: The instructors were supportive				---
Strongly agree or agree	29	19 (100.0)	10 (100.0)	
Undecided, disagree or strongly disagree	0	0 (0.0)	0 (0.00)	
Q25: The instructors were trustworthy				1.000
Strongly agree or agree	28	18 (94.7)	10 (100.0)	
Undecided, disagree or strongly disagree	1	1 (5.3)	0 (0.0)	
Q26: The instructors were helpful				---
Strongly agree or agree	29	19 (100.0)	10 (100.0)	
Undecided, disagree or strongly disagree	0	0 (0.0)	0 (0.0)	
Q27: The instructors used respectful language when talking about my weight				---
Strongly agree or agree	29	19 (100.0)	10 (100.0)	
Undecided, disagree or strongly disagree	0	0 (0.0)	0 (0.0)	
Q28: The instructors had the same values around weight and health as me				1.000
Strongly agree or agree	26	17 (89.5)	9 (90.0)	
Undecided, disagree or strongly disagree	3	2 (10.5)	1 (10.0)	
Q29: The instructors allowed me to voice my concerns				0.345
Strongly agree or agree	28	19 (100.0)	9 (90.0)	
Undecided, disagree or strongly disagree	1	0 (0.0)	1 (10.0)	
Q30: The instructors care whether I achieve my healthy lifestyles goals				---
Strongly agree or agree	29	19 (100.0)	10 (100.0)	
Undecided, disagree or strongly disagree	0	0 (0.0)	0 (0.0)	

Numbers may not sum to total due to missing data, and column percentages may not sum to 100% due to rounding.

[£] P-value for fisher's exact test.

Table 9. Likert scale mean subscores correlated with study outcomes, BMI change, percent body fat change, and number of program cycles attended.

Subscale	BMI Change (n=28)		Percent Body Fat Change (n=28)		Number of Cycles Completed (n=29)	
	Pearson	p	Pearson	p	Pearson	p
Component/strategies subscale	-0.344	0.073	-0.204	0.297	0.249	0.194
Participant Comfort Subscale	0.081	0.683	0.137	0.486	-0.040	0.835
Instructor Subscale	-0.207	0.291	-0.272	0.162	0.105	0.588

Table 10a. Correlation between Likert survey questions 8-30 and adolescent BMI change (n=28).

Adolescent Survey Item	Pearson Correlation	p
Q8: The program visits were fun and not boring	-0.113	0.566
Q9: I felt that I could achieve the healthy lifestyles goals	-0.154	0.434
Q10: The program was easy to understand	-0.374	**0.050**†
Q11: The program materials were helpful	-0.266	0.171
Q12: The program visits worked with my school schedule	-0.129	0.511
Q13: The program visits were not too long	-0.352	0.067
Q14: I felt comfortable while exercising	0.125	0.528
Q15: I felt comfortable participating during the nutrition lessons	0.338	0.079
Q16: I felt comfortable talking about myself	0.065	0.743
Q17: I felt comfortable while I was being weighed	0.066	0.740
Q18: I felt like there was hope for change	-0.114	0.564
Q19: It was easy to understand the instructors	-0.301	0.119
Q20: The instructors were knowledgeable	-0.162	0.410
Q21: The instructors were friendly	-0.80	0.687
Q22: The instructors were respectful	-0.47	0.811
Q23: The instructors understood me	-0.258	0.184
Q24: The instructors were supportive	-0.162	0.410
Q25: The instructors were trustworthy	-0.379	**0.046***
Q26: The instructors were helpful	-0.178	0.364
Q27: The instructors used respectful language when talking about my weight	-0.178	0.365
Q28: The instructors had the same values around weight and health as me	0.012	0.952
Q29: The instructors allowed me to voice my concerns	0.063	0.749
Q30: The instructors care whether I achieve my healthy lifestyles goals	-0.356	0.063

*designates significant at the 0.05 level
†designates borderline significant at the 0.05 level

Table 10b. Correlation between Likert survey questions 8-30 and adolescent percent body fat change (n=28).

Adolescent Survey Item	Pearson Correlation	p
Q8: The program visits were fun and not boring	-0.013	0.948
Q9: I felt that I could achieve the healthy lifestyles goals	-0.139	0.480
Q10: The program was easy to understand	-0.133	0.501
Q11: The program materials were helpful	-0.208	0.288
Q12: The program visits worked with my school schedule	-0.125	0.526
Q13: The program visits were not too long	-0.246	0.207
Q14: I felt comfortable while exercising	0.025	0.899
Q15: I felt comfortable participating during the nutrition lessons	0.109	0.581
Q16: I felt comfortable talking about myself	0.292	0.132
Q17: I felt comfortable while I was being weighed	0.228	0.243
Q18: I felt like there was hope for change	-0.066	0.739
Q19: It was easy to understand the instructors	-0.168	0.393
Q20: The instructors were knowledgeable	-0.309	0.109
Q21: The instructors were friendly	-0.116	0.556
Q22: The instructors were respectful	-0.393	**0.038***
Q23: The instructors understood me	-0.167	0.395
Q24: The instructors were supportive	-0.388	**0.041***
Q25: The instructors were trustworthy	-0.266	**0.054**†
Q26: The instructors were helpful	-0.368	0.063
Q27: The instructors used respectful language when talking about my weight	-0.356	0.063
Q28: The instructors had the same values around weight and health as me	-0.019	0.923
Q29: The instructors allowed me to voice my concerns	-0.103	0.601
Q30: The instructors care whether I achieve my healthy lifestyles goals	-0.287	0.139

*designates significant at the 0.05 level.
†designates borderline significant at the 0.05 level

Table 10c. Correlation between Likert survey questions 8-30 and number of 12-week program cycles completed (n=29).

Adolescent Survey Item	Pearson Correlation	p
Q8: The program visits were fun and not boring	0.143	0.458
Q9: I felt that I could achieve the healthy lifestyles goals	-0.068	0.727
Q10: The program was easy to understand	0.359	**0.056**
Q11: The program materials were helpful	0.258	0.176
Q12: The program visits worked with my school schedule	0.130	0.501
Q13: The program visits were not too long	0.043	0.823
Q14: I felt comfortable while exercising	0.077	0.698
Q15: I felt comfortable participating during the nutrition lessons	-0.060	0.756
Q16: I felt comfortable talking about myself	-0.068	0.725
Q17: I felt comfortable while I was being weighed	0.020	0.918
Q18: I felt like there was hope for change	-0.177	0.358
Q19: It was easy to understand the instructors	0.158	0.412
Q20: The instructors were knowledgeable	0.039	0.842
Q21: The instructors were friendly	-0.071	0.715
Q22: The instructors were respectful	0.000	1.000
Q23: The instructors understood me	0.122	0.529
Q24: The instructors were supportive	0.119	0.538
Q25: The instructors were trustworthy	0.033	0.864
Q26: The instructors were helpful	0.039	0.864
Q27: The instructors used respectful language when talking about my weight	0.000	1.000
Q28: The instructors had the same values around weight and health as me	0.122	0.529
Q29: The instructors allowed me to voice my concerns	0.082	0.673
Q30: The instructors care whether I achieve my healthy lifestyles goals	0.079	0.682

[†]designates borderline significant at the 0.05 level.

Appendix I

Table 11. Instructor survey demographics **(**n=10).

Characteristic	**N (%)**
Gender	
Female	10 (100)
Age	
18-25	4 (40)
26-34	3 (30)
35-54	3 (30)
Race/Ethnicity	
Non-Hispanic White	10 (100)
Role in Program	
Supervisor	1 (10)
Program coordinator	5 (50)
Nutrition educator	4 (40)
Exercise Specialist	3 (30)
Parent class facilitator	1 (10)
Student status	
Undergraduate student	5 (50)

* Numbers may not sum to total due to missing data, and column percentages may not sum to 100% due to rounding and overlap.

Table 12. Instructor rankings of factors most important for adolescent participant engagement (n=10).

Program Factor	**Ranked 1 N(%)**	**Ranked 2 N(%)**	**Ranked 3 N(%)**	**Total N(%)**
Program weight management strategies	1 (10)	3 (30)	1 (10)	5 (50)
Program convenience (location/visit timing)	2 (20)	2 (20)	0 (0)	4 (40)
Parental involvement in the program	2 (20)	2 (20)	0 (0)	4 (40)
Positive instructor-participant/parent relationships	1 (10)	0 (0)	3 (30)	4 (40)
Participant comfort in taking part in the program	1 (10)	1 (10)	1 (10)	3 (30)
Positive participant-parent relationships	2 (20)	1 (10)	0 (0)	3 (30)
Positive participant-participant relationships	2 (20)	1 (10)	0 (0)	3 (30)

Appendix II

Figure 1. Perceived top-rated factors that adolescents perceived to be most important (n=29).

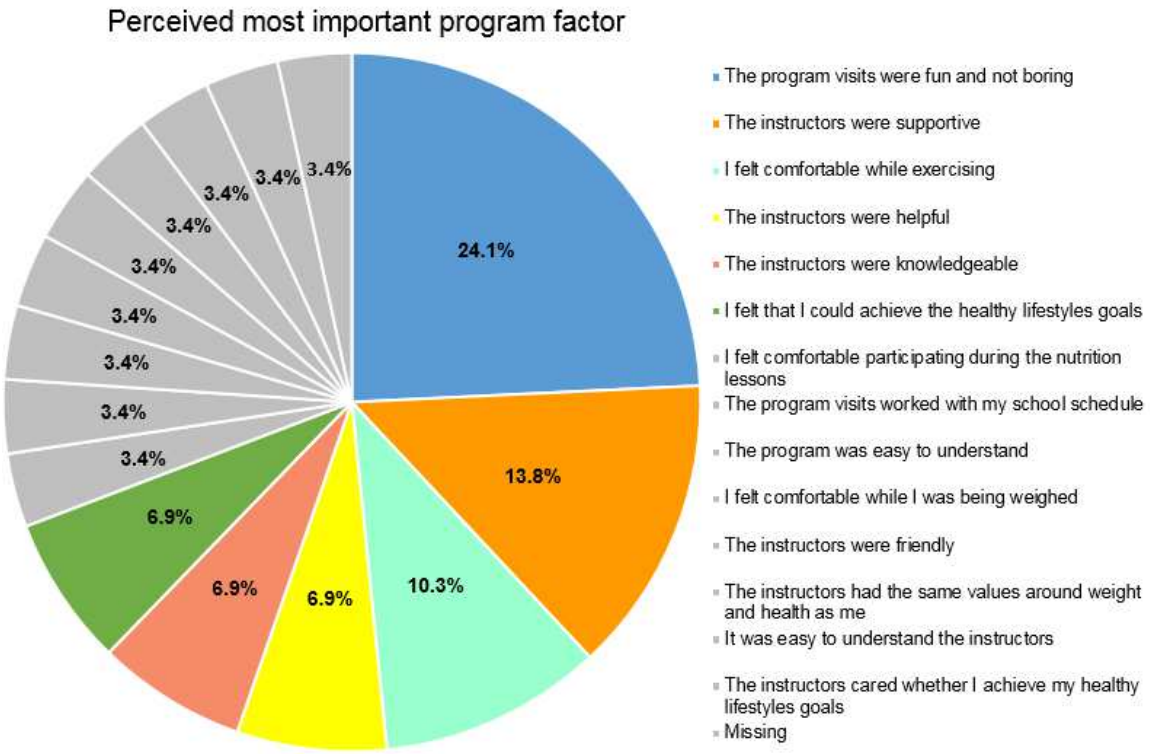

Table 13a: Qualitative analysis coding structure for adolescent survey question 32.

Theme	Code
Positive Participant-Instructor Relationship	
Caring Staff	1
Instructors easy to understand	2
Instructors helpful	3
Instructors knowledgeable	4
Instructors understand participants	5
Instructors did exercise with participants	6
Good relationship with instructors	7
Positive Participant-Participant Relationship	
Friendship/bond with other participants	8
Support from being in the same situation as other kids	9
Exercising with other kids	10
Effective weight management strategies	
General helpful topics	11
Dedicated time for weight loss	12
Calorie Tracking	13
Being able to exercise	14
Indoor exercise	15
Challenging/age appropriate exercise	16
Parent participation	17

Table 13b: Unedited responses to question 32 from adolescent survey.

Question 32. What other things about the Bright Bodies program (not listed above) were important to you?		
#	**RESPONSE**	**CODE**
1	This is the best program I went to so far!	Excluded
2	Time management	12
3	How caring the staff is	1
4	Being encouraged to keep track of my calories, the parts where they encouraged my parents to help.	13, 17
5	The instructors were easy to understand	2
6	I made friends and I felt like people like me	8
7	The people were helpful. They understand us.	3, 5
8	To exercise more and stay healthy	14
9	The topics were helpful and great	11
10	Being able to ask about certain foods and they would answer	4
11	The kids were nice	8
12	I made so many friends. I felt like part of a family there	8
13	Instructors did exercise with us, more fun that way	6
14	Being able to be inside during the program	15
15	Doing exercises that were more challenged and age related	16
16	Everything that was important to me was listed	Excluded
17	They helped me and I felt like I had a good relationship with instructors and kids	7,8

18	Meeting new people that are in the program with me	8
19	To focus and lose weight	12
20	The fact that the other people around me are in the same situation as me	9
21	That I was able to talk to the instructor about anything and something like that builds truth and integrity	7
22	That I could exercise with other kids	10
23	The supportiveness between the kids my age taking part in the program and the bond that should have sparked from it is very important to me	8

Table 14a: Qualitative analysis coding structure for question 33.

Theme	**Code**
Having family support	1
Being motivated/determined/hopeful	2
Increased elf-confidence	3
Comfort in program	4
Being able to identify areas of improvement	5

Table 14b: Unedited responses to question 33 from adolescent survey.

Question 33. What personal factors about yourself do you feel helped you complete the program?		
#	**RESPONSE**	**CODE**
1	The exercise helped me lose a lot of weight	Excluded
2	The exercise!	Excluded
3	Being supported by my family, being motivated to be healthy	1, 2
4	How they respect my decisions	Excluded
5	Trying my hardest and making the right decision of eating	2
6	The program was fun	Excluded
7	Stay healthy and keep exercising	Excluded
8	I feel more confident and healthy, I'm more active and healthy	3
9	I was comfortable doing the things they told me	4
10	I gained confidence in program, so this helped	3
11	Eating healthy, my dad supported me	1
12	Family support. I was highly motivated	1, 2
13	Support from family	1
14	Being with the sample kids week after week	Excluded
15	My grandfather forced me :)	1
16	Trying my best and paying attention	2
17	Kid oriented, fun with games, strategies to succeed	Excluded
18	Me wanting to be a better person and knowing I can be a better person and just wanting to do it	2
19	Being determined. Using information they taught me	2

20	Talking about myself and how I can do better next time	5
21	I knew I could change for myself	2
22	My determination and desire to be healthier and fit	2
23	I feel that my hope and determination was the thing that got me through the program	2

Table 15a: Qualitative analysis coding structure for instructor survey question 8.

Theme	Code
Positive Participant-Instructor Relationship	
Role model for participants	1
Instructor encouragement	2
Positive Parental-Participant Relationship	
Positive parental figure	3
Effective weight management strategies	
Motivational strategies/incentives	4
Positive reinforcement/feedback/praise	5
Program flexibility/participate at own pace	6
Interactive/enjoyable curriculum	7
Program variety	8
Realistic curriculum	9
Participant related factors	
Participant cooperation	10
Participants teaching other participants strategies	11
Participant motivation	12

Table 15b: Unedited responses to question 8 from instructor survey.

Question 8: What other factors do you feel are important for participant engagement?		
#	**RESPONSE**	**CODE**
1	Motivational strategies, pleasure/happiness during program (should be having some fun), flexibility/ability to work at own pace in exercise room, regular feedback re: progress.	4, 7, 6, 5
2	Hands on and interactive games to help to engage the participants in learning.	7
3	Participant involvement in program, ability to listen to instructors	10
4	That the participants have fun and are surrounded by positive reinforcement.	7, 5
5	The most successful children have the combination of a positive parental figure and timing with the child's motivation. I feel strongly the curriculum is important and the enjoyment of the exercise but if those 2 key elements are missing, the child will ot progress to their fullest potential.	3, 12, 7
6	It is important to have the participants feel that they are being acknowledged for their hard work to make a better choice in their eating and movement habits. Though this falls under the weight management strategies factor for the reason that we create incentives to keep the children engaged and motivated, recognizing the member's hard work through other means of encouragement (praise for accomplishment, certificates and high-fives for example) are motivational techniques. These techniques are key to letting the members know that the instructors are here to encourage them every step of the way.	5, 4, 2

7	It needs to be fun, high energy, hands on activities (nutrition), different games every session, and allowing the participants to share a game with the group or teach them a new skill, like dancing	7, 11
8	Variety of exercise programming as well as developing exercise and nutrition habits that are easily adaptable to continue when not in the structure of a program. Its important to facilitate the mental change of food and exercise associations	8, 10
9	Being there for the children and being a role model for someone to look up too.	1

Table 16a: Qualitative analysis coding structure for instructor survey question 9.

Theme	**Code**
Limited transportation	1
Lack of parental involvement	2
Limited knowledge	3
Limited financial resources for healthy food choices	4
Inner city environment limiting outside activities	5
Decreased participant cooperation	6
Limited financial resources for program cost	7
Parent and participant motivation disconnect	8
Low child self concept/self-esteem	9
Language barrier	10
Feeling embarrassed	11
Family issues	12

Table 16b: Unedited responses to question 9 from instructor survey.

Question 9: What are barriers for participant engagement? Are there unique contextual barriers to participant engagement faced by Bright Bodies participants who live within inner-city environments? If so, please elaborate.		
#	**RESPONSE**	**CODE**
1	Transportation, lack of parental involvement or inability for parent to attend because of lack of childcare.	1, 2
2	The families of the participants in the program may also lack knowledge of the importance of a healthier lifestyle or may not have the resources to always afford a better choice. Living in the inner city may also have an impact on the amount of outside activities.	3, 4, 5
3	Some participants are reluctant to listen to the instructors. Some do not listen when asked to put phone away or to participate in the activity.	6
4	Some barriers we face, they sometimes form "clicks" and then they all don't listen to the instructor or they are just not in the mood to workout.	6
5	Cost and transportation. Cost is two-fold: Cost of the actual program and cost of healthier food options. Even with New Haven initiatives that allow food stamps at farmers markets, the cost is substantially more for healthier foods. Transportation is a big factor as well. The school is not convenient to a bus route and is located in a more affluent section of the city.	1, 7
6	Barriers to participant engagement are: -Disconnect between parent and participant in reason/rationale for beginning and continuing lifestyle modification to better food choices and increased purposeful movement -Self Confidence scores on Piers-Harris or hrough instructor-participant-parent interaction are very low in throughout the program - Cost (there is a sliding scale used to match cost with parent income)	8, 9, 1, 7, 10, 6

	which can sometimes lead parents to step away from program participation -Cost (waived particiants), when parents have their children's cost waived due to financial contribution inability, the parents do not have as much an accountability to attend/bring their children to program consistently because they did not have to contribute a fee. - Tim: if the program is too early the parents are unable to provide transportation; and too late is when the kids need to get to bed for school nights, and it is harder to motivate participants at the end of a long day. -Transportation: Many of the children ive in the city which can lead to difficulty in attendance because several families are coming by bus or taxi and therefore can either not afford transportation costs or cannot find bus times to match program times. -Language Barrier: Some parents are no-English speaking. Due to the inability to receive funding for a staff member to consistently attend that is bilingual, families that need a Spanish speaking staff member are not as engaged due to a lack of smooth communication. -Behavior: Behavior disorers and participants that are consistently uncooperative can lead to issues with participant engagement because staff needs to spend more time providing direction and instruction for that member rather than focusing on the objectives for exercise and nutrtion that session.	
7	Barriers for participant engagement would be the cost of the program. When I was the program coordinator we transitioned from using the "sliding scale" to having a set cost. I think this was the biggest issue since the program was so well known in New Havn that parents heard from other members that we had a sliding scale and then we stopped using it. We always worked something out to have members join the program at a reduced cost, but this was the biggest barrier at the time I left the program.	7
8	Sometimes getting a ride to the program is an issue. Other barriers are their lack of self esteem in themselves to perform the activities (thinking they can't do something), not wanting to be there because their parents or doctors made them join, feeling mbarrassed., Also some of the participants are not consistent in coming to program every week (can be do to family issues, not wanting to come, etc)	1, 9, 8, 11, 12
9	Parent involvement carryover for diet and food changes	2
10	Yes, because when we are teaching we want to make sure they will be able to access materials. I never want to teach something to them about nutrition that they won't have access to for getting. This can be related to the cost of foods and what is available to the children.	4

Table 17a: Qualitative analysis coding structure for instructor survey question 10.

Theme	Code
Accepting environment/no bullying	1
Behavior modification techniques	2
Inclusion of parental classes/multifaceted family approach	3
Caring instructors/positive instructor-participant bond	4
Opportunity for adolescents to support each other	5
Cost flexibility	6
Incorporation of research-based practices	7
Participant incentives	8
Diverse staff training	9
School versus clinic setting	10
Weight management strategies	11

Table 17b: Unedited responses to question 10 from instructor survey.

Question 10. What do you feel are unique strengths about the Bright Bodies program?		
#	**RESPONSE**	**CODE**
1	(1) Accepting environment. I am happy to report that we have NEVER had a case of bullying--everyone is the same and they are all coming from an environment in which they have been bullied (2) inclusion of behavior modification techniques (ie, not all nutrtion education--people can learn about healthful foods, but you need to give tools to CHOOSE the healthful foods over the junk foods) to eventually make positive lifestyle changes; inclusion of parents; (3) inclusion of parental classes that give parentstools to be good role models and to feel empowered to help their family.	1, 2, 3
2	The staff that was involved with the program the paid and the volunteers that provided their time. They were all interested in the participants wellbeing. They cared about the success of each person. It is a great opportunity for adolescents to help encorage each other as well. Give each other support and ideas to live a healthier lifestyle.	4, 5
3	It gives children at a very vulnerable age a chance to see others struggling with the same difficulties they are. They are able to relate to one another and know they are not alone.	5
4	We focus on individuals who are trying to change their lifestyle but just need that extra push.	
5	The sliding scale. The staff has the freedom to waive the cost to families that cannot afford it and have a high level of motivation. Most programs do not have such a reasonable sliding scale. $100 has been the lowest cost of the program for 10 years bcause it is recognized to be a challenge for most families that most need the program.	6
6	Strengths of the Bright Bodies Program are: -Rare Opportunity: Despite the growing prevalence of childhood obesity, the children of CT are unable to find programs tackling weight management that are simple, fun and engaging. We are one of the only program in the state that offers a children's weight management program focusing on nutrition and exercise education. -Research: Before my participation as coordinator, Mary Savoye R.D. (Director) was able to create studies that showed the success numerically (eight less, %body fat, bmi, height, HR measurements, Target HR zone, health and skill related fitness testing)	7, 8, 3, 9, 10, 11

	and psychologically (Piers-Harris, Risky Business Classes, Parent involvement through walking groups and classes, Incentive programs-gift cards,certificates, high fives) for the participants that completed the program for one or more consecutive sessions. -Parent Involvement: Many classes have parents drop off the children while Bright Bodies involves the parents in the repairing of health and ellness of the family. These activities include: parent walking group, parent weigh-ins, parent classes, parent-participant exercise sessions. We also offer newsletters that allow parents to stay involved in what the participants are learning and ideas fo better food choices and active games at home. -Knowledgeable Staff: We have dedicated and knowledgeable staff in the areas of Exercise Science, Nutrition, Psychology, Childhood Education and Public Health. Each staff member is trained to provide positiv instructor-participant interaction and successful classes that engage the members in safe and fun activities. -3 Point Plan: Lifestyle Modification, Exercise and Nutrition education are all apart of the plan to help direct each members to make 'Better Fod Choices', think positively about themselves, and participate in regular exercise. -Motivation/Incentive: We offer incentives for a job well done such as prizes, gift cards, certificates and mini events li [cut off]	
7	The Bright Bodies program is the only program that incorporates nutrition, behavior modification, and exercise in the area. At the time I was at the program, we were located at Celentano School and this was a familiar environment for the kids to be in sine they attend school daily. If we were at a clinic building this would probably be scary to start a program of this nature.	11
8	Bright Bodies is a great program because it focuses on a non-diet approach system, where they learn the skills to make better food choices in any situation that they are in, such as at home, in a restaurant or even at a friends house. They also learn about themselves and what/who/where triggers their overeating and how they can cope with those eating triggers. The participants learn different exercises that they can do at home and exercise doesn't mean just going to the gym (find activities that they like o do, such as dancing)	12
9	The effort put forth in fostering a whole family approach in developing new positive relationship with food and exercise	3
10	I feel that the unique strengths about Bright Bodies program is how as instructors we can form unique and special bonds with the children. That is my favorite part about the program! It makes me feel good about myself inside.	4

Appendix III

Table 18a: Qualitative analysis coding structure for instructor survey question 11.

Theme	Code
Lack of transportation	1
Lack of funding resources	2
Lack of having a designated program facility	3
Program not covered by insurance	4
Difficulty with participant cooperation	5
Many families referred never make contact with program	6
Parental outside obligations	7
Parental buy-in	8

Table 18b: Unedited Responses to Question 11 from Instructor Survey.

Question 11. What are examples of challenges you have faced during the implementation of the Bright Bodies program?		
#	**RESPONSE**	**CODE**
1	(1) Lack of transportation for the members; (2) Lack of resources to pay for salaries for seasoned staff (we rely on help of students so staff changes a lot except for a few key staff members); (3) Lack of place to call "home": Bright Bodies would benefitgreatly from having a place of their own. It is frustrating to share the gymnasium with other programs (time conflicts are frequent) and to store equipment/scale in a storage closet (or our own cars!) and drag it all out twice a week. It would be nice to ang up educational material and leave it on wall; (4) Lack of insurance coverage for this service, although we do not turn anyone away. Revenue from insurance might allow us more resources.	1, 2, 3, 4
2	there were not any real challanges	Excluded from coding analysis
3	Participants not wanting to listen to the instructors	5
4	I have had difficulty with the kids paying attention, and getting them to participate.	5
5	The population is a very difficult population to work with. Missed appointments are frequent in a doctor's office setting with this population; Bright Bodies is no exception. For every family that reached out interested in the program, a small fraction ill step through the door.	6
6	Challenges that we have faced can really go back to the barriers that we have mentioned above. The only factor not mentioned above would be due to the lack of funding for our program we are unable to have a permanent location. The lack of funding also mkes it difficult to pursue other research ventures, have employed staff rather than volunteers and purchase updated equipment for the exercise classes.	3, 2
7	Challenges would be attendance of the students. Since the program was after school at Celentano, many parents/guardians were not able to make it some weeks due to other obligations with other children. The after-school program appeared to benefit the kidsmore, but the parent/guardian interaction was not there with that program.	7
8	Behavior and listening with the participants are very challenging. Some of the participants feel like they don't have to listen and can do whatever they want. Putting their cell phones away is very hard (we are trying to have them put it in a box now an at the end of program they can take it at the end Some of the kids on some days just don't feel like trying Not having access to the gym; playing in the hall (we make it work	5

	though)	
9	Behavior. It takes away from the limited time to have a good exercise class	5
10	Probably dealing with the parents and making sure they are on board with the program. If they don't support the children the children has no motivation to achieve their goals in the program.	8

Table 19a: Qualitative analysis coding structure for instructor survey question 11.

Theme	Code
Increased funding via donors/insurance coverage	1
Incorporate cooking/shopping activities	2
Incorporate physical fitness testing	3
Not having parents watch kids during exercise	4
Having bilingual staff	5
Offer transportation	6
Increased program advertising	7
Having designated program facility	8
Increased parental involvement	9

Table 19b: Unedited responses to question 12 from instructor survey.

1. **Question 12. Looking forward, how do you feel the Bright Bodies program could be modified to best meet the needs of participants and families, including promoting participant engagement?**		
#	RESPONSE	CODE
1	Bright Bodies staff could find a donor(s) to help us run the program as it should be operated and/or insurance companies could cover the service, allowing us to generate more revenue and meet the resource needs to improve our services.	1
2	Cooking section maybe worth trying to show how easy and tasty a few changes can be to a recipe. After taking the first session have additional programs maybe a little more in depth for example cooking or shopping that would help encourage them to continuethe healthier lifestyle.	2
3	Have another form of progress other than weight. If we could do physical testing to see how far the children came from the beginning of the program to the end and they could see they improved even if it wasn't on the scale.	3
4	I think that parents should be encouraged to not watch their kids in the gym, I think it adds pressure and its not fair to the kids.	4
5	Better insurance participation will help the lower income families. This will eliminate a barrier for those on state insurance (Husky).	1
6	Grants/Funding: -Staff that could focus on funding for the program would be a huge help as it would allow us to make our location more permanent and give the staff the ability to integrate a larger variety of exercise and nutrition activities for weekly rograms. -Bilingual staff member -Ability to offer transportation or money for transportation for families without cars that use public transportation -More marketing through the hospital about the program's benefits and opportunities - More funding s participants would have to only pay for program materials and not for a program cost (Like a Bright Bodies scholarship for participants)	1, 5, 6, 7, 8
7	Since I have not been with the Bright Bodies program in a few years, I am sure many things have changed already. I think being able to have	9

	parent classes several times throughout a program would be great. We did this when the kids were in the behavior moification class. This allowed parents to "vent" about issues at home and receive guidance and advice how to help work on these issues.	
8	It would be nice if we had our own building with more equipment to play different games with the kids and show them how to use weights	8
9	I think it really does a good job at accommodating everyone	Excluded
10	Trying to have to parents join in more exercise class with their children. maybe have more parent and children type of classes so they can be more involved.	9

Table 20a: Qualitative analysis coding structure for instructor survey question 11.

Theme	**Code**
Need for increased university involvement with Bright Bodies program/New Haven community	1
Positive/rewarding experience for both staff and participants	2
Talented staff	3
Program able to flourish despite limited financial resources	4

Table 20b: Unedited Responses to Question 12 from Instructor Survey.

Question 12. Please share any additional thoughts regarding your experiences as a Bright Bodies staff member that you feel are important.		
#	**RESPONSE**	**CODE**
1	Childhood obesity is an epidemic and the services of Bright Bodies are not being valued by the university. I use the word "service" because helping overweight children is a unique service or talent and is not an income-generating provision. Moreover, chldhood obesity is more prevalent in the indigent population, and, therefore, cannot be an income-producing service. The university needs to take a more active role in its community to help reduce adiposity in children and consequently curtail diabetes an other obesity-related diseases. It has a successful, internationally-known pediatric obesity program in its "backyard" and doesn't even know it.	1
2	It was a very positive experience from the staff to the participants. There were many participants that came back session after session to learn more and participate in the program .	2
3	[Named exercise physiologist] has the best bedside manor of anyone I have ever met. She is able to relate to the children and at the same time get their spirits up and get them engaged	3
4	Despite the obstacles associated with hosting a program without proper funding, the effective delivery of weekly program sessions and the dedicated student-volunteers and staff has allowed Bright Bodies to flourish into a 16-years and counting success stoy that remains to be an opportunity for families in the New Haven area.	4
5	Volunteering for Bright Bodies has been a great experience helping kids to achieve their goals and teaching them about how to make better food choices. Watching the kids faces when they lose weight and having fun playing the games it just makes your night Even parents love seeing their children laugh and smile while they are The participants make friends with each other so it is another support for them	2

Appendix IV

I. Adolescent Survey

Congratulations, you have completed at least one 12-week Bright Bodies Program! We are interested in finding out more about what participants like you found helpful for completing the program.

Taking part in this survey is completely voluntary, confidential, and anonymous. Results will in no way affect your participation in the Bright Bodies Program. You are free to decline to participate, to end participation at any time for any reason, or refuse to answer any individual question without penalty. There is no way to perform poorly on this survey. Please respond to each question to the best of your ability.

There are 33 questions and the survey will take you approximately 10 minutes to complete.

If you would like to know more information about this project or if you have any questions, please contact Athena Samaras at athena.samaras@yale.edu.

Q1: What is today's date?_____

Q2: What is your gender?

☐ Male

☐ Female

☐ Transgender

Q3: How old were you when you completed your most recent 12-week Bright Bodies Program?

☐ 11

☐ 12

☐ 13

☐ 14

☐ 15

☐ 16

Q4: What best describes your race/ethnicity?

☐ Non-Hispanic White

☐ Hispanic/Latino

☐ Black or African American

☐ American Indian/Alaska Native

☐ Asian

☐ Hawaiian/Pacific Islander

☐ Other: Please specify _____

Q5: How many 12-week Bright Bodies Programs have you completed?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

☐ More than 5

Q6: When was the most recent time you competed a 12-week Bright Bodies Program?

☐ June 2015

☐ March 2015

☐ December 2014

☐ June 2014

☐ March 2014

☐ Other (please specify)

Q7: Who comes with you to the Bright Bodies Program?

☐ Mother

☐ Father

☐ Guardian

☐ Other (please specify)

For questions 8-30 indicate **how much you agree** with the following factors?

Q8: The program visits were fun and not boring	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q9: I felt that I could achieve the healthy lifestyles goals	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q10: The program was easy to understand	☐ Strongly agree ☐ Agree ☐ Undecided

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	☐ Disagree ☐ Strongly disagree
Q11: The program materials were helpful	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q12: The program visits worked with my school schedule	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q13: The program visits were not too long	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q14: I felt comfortable while exercising	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q15: I felt comfortable participating during the nutrition lessons	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q16: I felt comfortable talking about myself	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q17: I felt comfortable while I was being weighed	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q18: I felt like there was hope for change	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q19: It was easy to understand the instructors	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q20: The instructors were knowledgeable	☐ Strongly agree

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	☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q21: The instructors were friendly	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q22: The instructors were respectful	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q23: The instructors understood me	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q24: The instructors were supportive	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q25: The instructors were trustworthy	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q26: The instructors were helpful	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q27: The instructors used respectful language when talking about my weight	☐ Strongly agree ☐ Agree ☐ Undecided ☐ Disagree ☐ Strongly disagree
Q28: The instructors had the same values around weight and health as me	☐ Strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ Strongly agree
Q29: The instructors allowed me to voice my concerns	☐ Strongly disagree ☐ Disagree ☐ Undecided ☐ Agree

	☐ Strongly agree
Q30: The instructors cared whether I achieve my healthy lifestyles goals	☐ Strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ Strongly agree

Q31: Out of the factors (questions 8-30) listed above, which **three** were most important to you? List the corresponding question number below:

1. __#_____

2. __#_____

3. __#_____

Q32: What other things about the Bright Bodies program (not listed above) were important to you?

_____

Q32: What personal factors about yourself do you feel helped you complete the program?

_____

II. Instructor Survey:

Dear current and previous Bright Bodies program staff:

My name is Athena Samaras and I am a dual Pediatric Nurse Practitioner-Master of Public Health Candidate at Yale University School of Nursing and Yale University School of Public Health. As part of my thesis project, I would like to invite you to participate in a brief online survey. Results from this survey will not be used for comparisons between individuals. Rather, the goal is to assess the Bright Bodies program process/implementation from a staff perspective. There are no known risks to participating in this survey. Taking part in this survey is completely voluntary and confidential. Results will in no way affect your employment/volunteer status with the Bright Bodies program. You are free to decline to participate, to end participation at any time for any reason, or to refuse to answer any individual question without penalty. This is not an aptitude test and there is no way to perform poorly. Please respond to every question to the best of your ability. Responses will be confidential so please feel free to answer candidly. There are 12 questions and completing the survey will take approximately 10-15 minutes. There is no monetary compensation for participating in this survey; however, it is our hope that your participation will aid the future development of the Bright Bodies program as well as similar pediatric weight management programs. If you would like to know more information about this project or if you have any questions, please contact Athena Samaras at athena.samaras@yale.edu. Thank you for your consideration.

Best, Athena Samaras, RN

1.

☐ I agree and wish to continue to the online survey

☐ I disagree and do not wish to continue to the online survey

2. What is your gender?
    - Male
    - Female
    - Transgender
    - Prefer not to answer

3. How old are you?
    - 18-25
    - 26-34
    - 35-54
    - 55-64
    - 65 or over

4. What is/was your role as a staff member at the Bright Bodies program? (Select all that apply)
    - Supervisor
    - Program coordinator
    - Nutrition educator
    - Exercise educator
    - Undergraduate student
    - Graduate student
    - Other (Specify)

5. What best describes your race/ethnicity?
    - Non-Hispanic White

- Hispanic/Latino
- Black or African American
- American Indian/Alaska Native
- Asian
- Hawaiian/Pacific Islander
- Other (Specify)

6. How long have you been/were you involved with the program? (Please respond using months or years).
    - Text response

7. What aspects about the Bright Bodies program do you feel are most important for adolescent participant engagement? Rank the **top three** factors from the following list:
    - Program convenience (location/visit timing)
    - Program weight management strategies
    - Participant comfort in taking part in the program
    - Parental involvement in the program
    - Positive instructor-participant/parent relationships
    - Positive participant-parent relationships
    - Positive participant-participant relationships

8. What **other** factors do you feel are important for participant engagement?
    - Text response

9. What are barriers for participant engagement? Are there unique contextual barriers to participant engagement faced by Bright Bodies participants who live within inner-city environments? If so, please elaborate.
    - Text response

10. What do you feel are unique strengths about the Bright Bodies program?
    - Text response

11. What are examples of challenges you have faced during the implementation of the Bright Bodies program?
    - Text response

12. Looking forward, how do you feel the Bright Bodies program could be modified to best meet the needs of participants and families, including promoting participant engagement?
    - Text response

13. Please share any additional thoughts regarding your experiences as a Bright Bodies staff member that you feel are important.
    - Text response

III. Field Note Observation Guide

Primary Observations:

Date of observation:	**Time of observation**:	**Place**:
Observer:		
Actors present:		

Circumstantial and background information:

Program Component:	**Notes:**
Program Component:	**Notes:**
Program Component:	**Notes:**
Program Component:	**Notes:**
Program Component:	**Notes:**

Appendix IV

Secondary Observations and Experiential Data:

Descriptive Notes	Reflective Notes