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Title: Real-World Effectiveness of the Yale Bright Bodies Pediatric Weight Management Program from 2008-2017
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Background: An RCT published in 2007 showed that Bright Bodies (BB), a family-based pediatric weight management program, improved BMI, body composition, and insulin sensitivity among 8-16 year-olds with obesity. Over the past decade, BB has adapted to ensure sustainability, yet, its effectiveness has not been studied since the initial trial.

Objective: To assess real-world effectiveness of BB in improving BMI among children with overweight/obesity, and identify factors associated with heterogeneity in effectiveness.

Design/Methods: Participants aged 5-18 years had BMI ≥ 85th percentile from 2008–2017 and age, sex, attendance, and weight/height available at start and end of their first BB session (excluded if missing variables). Sessions ranged 7-12 weeks and included 13-23 classes on nutrition/behavior modification. We examined BMI change from start to end of the session using one-sample t-tests and used multivariable linear regression to examine whether BMI change was associated with sex, age, baseline BMI, attendance, or year of participation. Finally, we interviewed BB leadership to identify program adaptations using the Stirman framework.

Results: Participants included 170 children in 14 sessions; 66.5% were female with mean ± SD age 12 ± 2.75 years, baseline BMI 35.04 ± 8.14 kg/m2, and attendance of 64 ± 23% out of 18.5 ± 2.3 classes. Participants’ mean BMI change after first session was -0.15 kg/m2 [95% CI: -0.29, -0.018]. For participants who attended ≥70% of classes (n=76), mean BMI change was -0.37 kg/m2 [95% CI: -0.58, -0.16]. Using linear regression adjusted for age, sex, number of classes, and baseline BMI, each 1% increase in attendance was associated with -0.006 kg/m2 BMI change [95% CI: -0.012, -0.0005]. No significant association between BMI change and sex, age, baseline BMI, or year of participation was observed.

Conclusion: Given that youth with obesity typically continue to gain weight, BB appears to remain effective in the context of real-world adaptation. The proportion of classes attended is positively associated with BMI reduction, yet our analysis is limited in determining whether this is a dose response or due to unmeasured participant/program characteristics.

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