

Evaluating the Effects of the Teen Outreach Program on Positive Youth Development Constructs

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Abstract

The Teen Outreach Program (TOP) is a positive youth development (PYD) program that seeks to reduce the risk of adolescent pregnancy, school dropout, and course failure. As TOP has not been evaluated for its impact on PYD constructs, our purpose was to assess this potential. A pair-matched, cluster randomized controlled trial to evaluate TOP among youth in 26 high schools was conducted in 2013-2014. Youth (N = 3740) were surveyed at baseline and immediately following program completion. A linear mixed effects model compared scores of the Lerner's Five Cs measure of PYD between treatment and control youth and by race/ethnicity and gender subgroups. After a multiple comparison adjustment, no statistically significant results were observed. Despite the lack of statistically significant findings, the current study can provide insight for future evaluations of TOP regarding adaptation and evaluation of core components, implementation, PYD impacts, and sexual and reproductive health outcomes.

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The Positive Youth Development (PYD) paradigm emphasizes internal and external assets, rather than focusing on deficits, in order to build positive attributes among youth for risk reduction (Gavin, Catalano, David-Ferdon, Gloppen, & Markham, 2010; Roth & Brooks-Gunn, 2003). Lerner's Five Cs framework has become a prominent PYD model centered on developing youths' *Competence, Confidence, Connection, Character, and Caring* (see Supplementary Material Table 1) (Lerner et al., 2005). Core implementation elements found in effective PYD programs include a structured curriculum, program delivery of nine months or longer, attention to program quality, and implementation fidelity (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004).

The Teen Outreach Program[®] (TOP) is a PYD program that seeks to reduce risk of adolescent pregnancy, school dropout, and course failure by incorporating elements of classroom-based instruction, skill-building, and community service learning (CSL) (Wyman, 2016). Although previous research provides evidence for changes in risk behaviors following TOP exposure, confirmation of the influence on PYD constructs has not been reported (Allen & Philliber, 2001). The purposes of this study were to: 1) evaluate proximal changes in PYD

constructs from baseline to follow-up among TOP participants in Florida high schools; and 2) examine differences by gender and race/ethnicity.

Methods

A detailed study description has been reported elsewhere (Walsh-Buhi et al., 2016). Briefly, this pair-matched, cluster randomized controlled trial included youth in 26 public high schools in 10 non-metropolitan Florida counties. After institutional review board approval, each school within each matched pair was randomized to either treatment (TOP) or control (e.g., Health/Fitness class) conditions. Data for the current analyses were provided by participants in the second study cohort, which began in September 2013. Among treatment schools, 2,075 youth were eligible; 1,722 (83%) completed baseline, and 1,271 (61%) completed follow-up. In the control schools, 2,357 youth were eligible to participate; 1,957 (83%) completed baseline, and 1,487 (63%) completed follow-up (Figure 1). Parental consent was obtained through a passive (i.e., opt-out) process. Table 1 displays youth demographic characteristics, on which treatment and control groups were approximately equivalent.

Fidelity assessment utilized measures based on Wyman's fidelity benchmarks, including the proportion of classes offering ≥ 25 program sessions, sessions over the span of 9 months, and ≥ 20 CSL hours. Data collection included attendance records, TOP facilitator curriculum logs, and TOP CSL records.

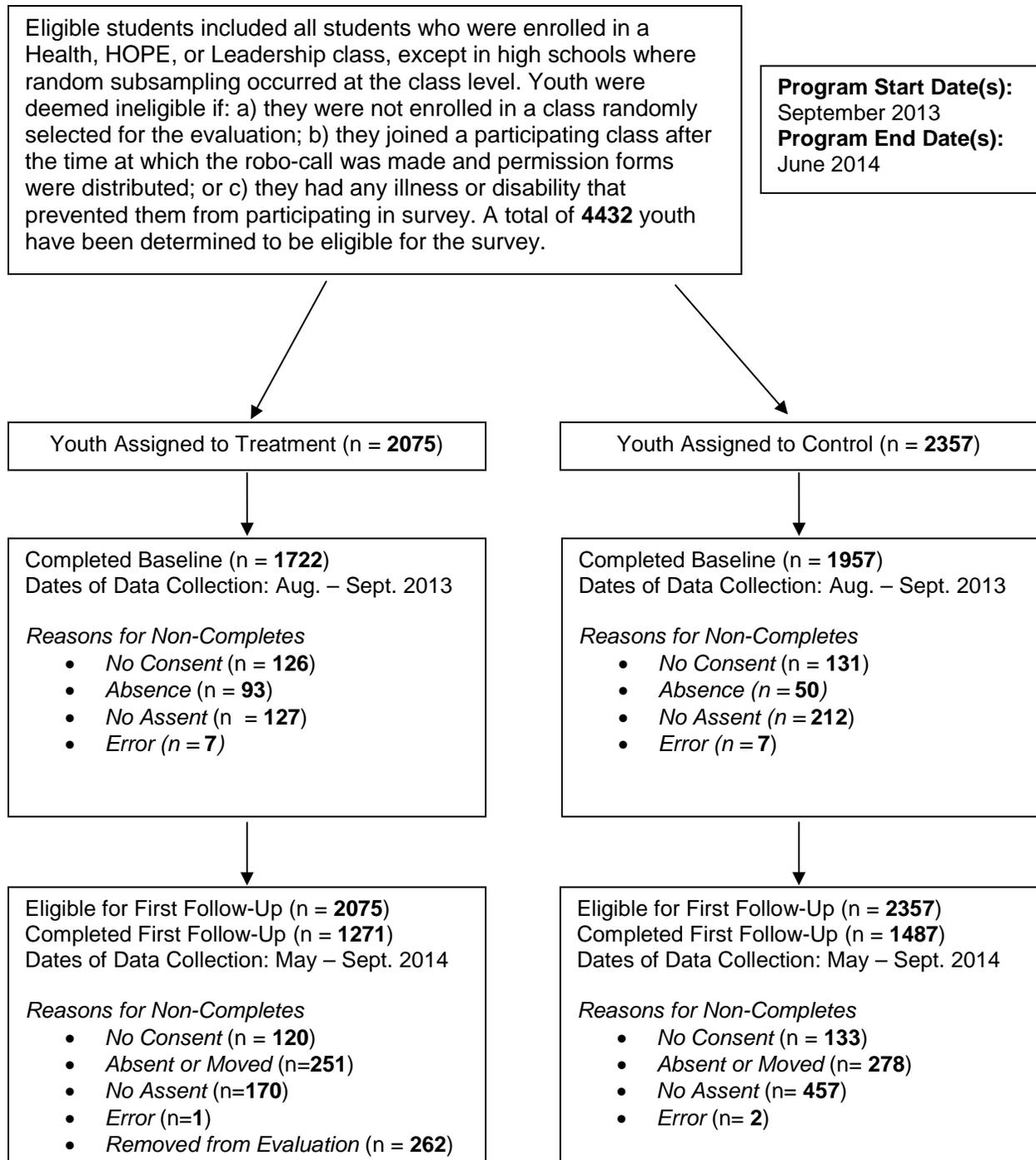
Lerner's Five Cs measure of PYD was used and calculated according to previous guidance (Lerner et al., 2005). A validity and reliability assessment was conducted using a confirmatory factor analysis (Mplus 7) and Cronbach's alpha (SAS 9.4) (see Supplementary Material Table 2). Each C was found to have either good or acceptable fit (Browne & Cudeck, 1993; Hu & Bentler, 1999) and high internal consistency reliability.

The TOP curriculum is structured around weekly lessons, CSL, and positive adult guidance/support to help youth build healthy behaviors, life skills, and a sense of purpose (Wyman, 2016). The curriculum consists of four levels tailored to different age groups. For this study, Level 2, intended for 14-year-old youth, was evaluated. Core components of TOP include: implementation over 9 consecutive months, ≥ 25 weekly lessons, and ≥ 20 CSL hours (Wyman, 2016). Lessons can be administered in any order and facilitators can choose which lessons to use (Wyman, 2016).

Missing demographic data were cleaned by retrieving demographic information for the same participant from another time point, if available. For our research questions, mean score change between treatment and control youth on each of the Five Cs at follow-up was evaluated using linear mixed effects modeling, where age, gender, race/ethnicity, and randomization block were included in the model as fixed effects, and school was included as a random effect. Estimates and their 95% confidence intervals (CIs) were reported. Estimates measure the change in mean score from baseline to follow-up. A negative estimate indicates a decrease in mean score at follow-up and a positive estimate shows that there was an increase in the mean score. The 95% CI demonstrates a statistically significant result if it excludes zero.

This analysis utilized multiple imputation (MI) estimates to account for any bias that may exist in measuring treatment effect because of missing data (Schafer, 1997). There were two types of missing data that MI addressed. The first is when a respondent completed the baseline survey, but did not complete a follow-up survey. The second type is when a respondent completed the follow-up survey, but did not have a baseline survey. Using MI, the final

Figure 1. CONSORT Diagram



analytical sample was 3,740. The numbers presented in the CONSORT diagram (Figure 1) were the number of participants that completed a survey at each time point. Therefore, the analytical sample presented in Tables 1 and 2 varies from the survey response numbers reported in Figure 1.

Missing response values were imputed based on the variables of school identifier, age, race/ethnicity, and gender and were done separately by treatment conditions. In total, 50 imputation data sets were produced to reach 99% efficiency of estimation. Estimates from these datasets were then integrated using the MIANALYZE procedure in SAS. To account for multiple hypothesis testing, a multiple comparison adjustment was conducted using the Holm-Bonferroni method (Holm, 1979) with the family error rate set at .05. All analyses were conducted in SAS 9.4.

Table 1

Characteristics of Study Participants

	Treatment (N = 1755)	Control (N = 1985)
	<i>n</i> (%)	<i>n</i> (%)
Gender		
Males	851 (49)	977 (49)
Females	904 (51)	1008 (51)
Age (in years)		
≤ 14	1134 (65)	1222 (62)
15	370 (21)	503 (25)
≥ 16	251 (14)	260 (13)
Race/ethnicity		
Black	189 (11)	221 (11)
Hispanic/Latino	366 (21)	413 (21)
White	1036 (59)	1157 (58)
Other	164 (9)	194 (10)

Results

In the 13 intervention schools, facilitators implemented TOP in 70 different classes throughout the year, with no classes receiving programming over the course of a full 9 months. Program length ranged from 196-266 days (6.4-8.7 months; median: 245 days, or 8 months). Sixty-four percent of classes received ≥ 25 sessions (range: 20-52 sessions, median: 27). On average, 12.1 CSL hours (*SD* = 6.54) were offered per class, with 7% having offered ≥ 20 CSL hours (range: 4-45 hours). Measures for implementation fidelity were limited due to incomplete attendance data, facilitator logs, and CSL records.

For our primary research question, none of the results reached statistical significance (Table 2). For our secondary research question, after adjusting for multiple comparisons, no results retained statistical significance (Table 2).

Table 2

Estimates and 95% Confidence Intervals for the Effect of the Teen Outreach Program on the Five Cs (N = 3740)

	All	Male	Female	Black	Hispanic	White	Other Race
Character	-0.01 (-0.08, 0.06)	-0.01 (-0.08, 0.06)	0.008 (-0.04, 0.05)	-0.12 ^a (-0.21,-0.03)	-0.02 (-0.09, 0.05)	0.002 (-0.06, 0.07)	0.02 (-0.07, 0.11)
Competence	0.008 (-0.04, 0.06)	0.008 (-0.04, 0.06)	-0.0001 (-0.06, 0.06)	0.005 (-0.11, 0.12)	0.0008 (-0.06, 0.08)	-0.009 (-0.08, 0.06)	0.007 (-0.09, 0.11)
Caring	0.001 (-0.10, 0.10)	0.001 (-0.10, 0.10)	0.002 (-0.07, 0.08)	0.02 (-0.17, 0.21)	0.009 (-0.10, 0.12)	-0.02 (-0.11, 0.06)	0.06 (-0.13, 0.25)
Connection	0.04 (-0.04, 0.11)	0.04 (-0.04, 0.11)	0.02 (-0.09, 0.14)	0.17 (-0.05, 0.39)	0.09 ^a (0.008, 0.18)	-0.008 (-0.09, 0.08)	0.01 (-0.13, 0.15)
Confidence	0.003 (-0.08, 0.08)	0.003 (-0.08, 0.08)	0.03 (-0.06, 0.11)	0.07 (-0.06, 0.21)	0.07 (-0.03, 0.17)	-0.02 (-0.10, 0.07)	0.05 (-0.06, 0.16)

Note. A negative estimate indicates that there was a decrease in the mean score of the C among treatment youth.

^a These findings are not statistically significant after adjusting for multiple comparisons.

Discussion

Although the efficacy of TOP's impact on sexual behaviors and pregnancy has been examined (Kirby, 2007; Walsh-Buhi et al., 2016), the current study is the first, to our knowledge, to assess the efficacy of TOP's impact on proximal PYD constructs. Although no statistically significant effects were observed, it may be that the lack of treatment effect was due to structural barriers to implementation fidelity. Since implementation data were incomplete, it is impossible to determine the extent to which lack of fidelity affected our findings. As stated in the introduction, core elements of PYD programs include having a structured curriculum, program delivery of 9 months or longer, attention to program quality, and implementation fidelity. With the existing implementation data, we can determine that these core elements were not met. Our lack of significant findings points to the importance of fidelity. As stated previously, the developer of TOP does not dictate which lessons should be implemented (Wyman, 2016). This makes it difficult to measure fidelity and to determine which lessons are having an impact on PYD constructs. Future research on TOP should include a component analysis of each lesson to determine which are most predictive of changes in PYD constructs.

Additionally, the lack of treatment effect may be due to the specific PYD model used, which formed the basis for the evaluation and associated assessment measures. The authors of the current study utilized Lerner's Five Cs to evaluate the PYD constructs and the absence of significant findings may be due to the lack of "fit" with the Five Cs framework. Future research should be conducted to assess proximal PYD constructs utilizing other existing PYD conceptual frameworks such as the Youth Assets or the 40 Developmental Assets frameworks.

Limitations

This study is not devoid of limitations. Originally, TOP was designed as an afterschool program (Allen & Philliber, 1991). Since the present study was an effectiveness evaluation, TOP was adapted to be implemented within the existing school structure under "real world" conditions. Thus, system factors (e.g., time, resources, and competing priorities) may have led to the implementation fidelity issues that this evaluation experienced. For example, due to the large number of testing days and holidays, TOP was not implemented for the recommended nine-month period. Additionally, structural constraints included limitations on resources schools set aside for implementation (e.g., classroom space) and restrictions related to transportation to out-of-school activities. These constraints meant that CSL activities were not only limited in terms of content, but also in the amount of time that could be spent doing them. Due to the difficulty experienced in completing the core PYD program elements, TOP may require adaptations to focus on unique barriers of the school-based system.

In summary, despite the lack of statistically significant changes in PYD constructs, the current study adds to the PYD evaluation literature and can serve as a basis for further evaluations of TOP regarding translational research effects such as adaptation and evaluation of core components, implementation, PYD proximal impacts, and sexual and reproductive health outcomes.

Implications and Contribution

This is the first study to examine the effect of TOP on PYD constructs. No increase in PYD constructs for youth participating in the Level 2 TOP curriculum was found. This may have been due to structural barriers within the school system and/or the PYD framework used.

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Supplementary Material

Supplemental Table 1

Definitions of the Five Cs of Positive Youth Development

Five Cs	Definitions
Character	Respect for societal and cultural rules, possession of standards for correct behaviors, a sense of right and wrong (values), and integrity.
Competence	Positive view of one's actions in specific area of academic, social, and physical. Academic competence pertains to grades, attendance, and test scores. Social competence relates to interpersonal skills such as conflict resolution. Physical competence relates to athletic ability.
Caring	A sense of sympathy and empathy for others.
Connection	Positive bonds with people and institutions that are reflected in bidirectional exchanges between the individual and peers, family, school, and neighborhood in which both parties contribute to the relationship.
Confidence	An internal sense of overall positive self-worth and identity.

Note. Adapted from "Positive youth development, participation in community youth development programs, and community contributions of fifth-grade adolescents: Findings from the first wave of the 4-H Study of Positive Youth Development," by R. M. Lerner et al., 2005, *The Journal of Early Adolescence*, 25(1), 17-71, p. 23.

Supplemental Table 2

Confirmatory Factor Analysis and Internal Reliability of the Five Cs Measure of PYD

	χ^2 (df)	RMSEA	RMSEA 90% CI	CFI	Cronbach's Alpha (α)
Character	2070.08 (166)	0.056	0.054, 0.058	0.922	.88
Competence	1239.62 (101)	0.056	0.053, 0.058	0.940	.86
Caring	500.44 (27)	0.070	0.065, 0.076	0.952	.82
Connection	1641.13 (185)	0.047	0.045, 0.049	0.960	.92
Confidence	1506.30 (43)	0.097	0.092, 0.101	0.901	.89

Note. RMSEA = root mean square error of approximation; CFI = comparative fit index.

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