April 2018

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

Rita DeBate  
*University of South Florida, rdebate@health.usf.edu*

Helen Mahony  
*University of South Florida, hgeorgie@health.usf.edu*

Ellen Daley  
*University of South Florida, edaley@health.usf.edu*

*See next page for additional authors*

Follow this and additional works at: [https://newprairiepress.org/hbr](https://newprairiepress.org/hbr)

Part of the Public Health Education and Promotion Commons

This work is licensed under a [Creative Commons Attribution-Noncommercial 4.0 License](https://creativecommons.org/licenses/by-nc/4.0/)

**Recommended Citation**  
DeBate, Rita; Mahony, Helen; Daley, Ellen; Wang, Wei; Marhefka, Stephanie; Maness, Sarah B.; Malmi, Markku; Ziemba, Robert; Noble, Charlotte; and Walsh-Buhi, Eric R. (2018) "Evaluating the Effects of the Teen Outreach Program on Positive Youth Development Constructs," *Health Behavior Research*: Vol. 1: No. 2. [https://doi.org/10.4148/2572-1836.1010](https://doi.org/10.4148/2572-1836.1010)

This Research Article is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Health Behavior Research by an authorized administrator of New Prairie Press. For more information, please contact [cad@k-state.edu](mailto:cad@k-state.edu).
Evaluating the Effects of the Teen Outreach Program on Positive Youth Development Constructs

Abstract

Introduction: 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.

Methods: 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.

Results: After a multiple comparison adjustment, no statistically significant results were observed.

Conclusions: 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.

Keywords
Positive Youth Development, Adolescence, Adolescent, Intervention, Youth, Sexual and Reproductive Health

Acknowledgements/Disclaimers/Disclosures
This study was conducted under Grant Number TP1AH000017-01 from the U.S. Office of Adolescent Health (OAH), U.S. Department of Health and Human Services (HHS).

Authors
Rita DeBate, Helen Mahony, Ellen Daley, Wei Wang, Stephanie Marhefka, Sarah B. Maness, Markku Malmi, Robert Ziemba, Charlotte Noble, and Eric R. Walsh-Buhi

This research article is available in Health Behavior Research: https://newprairiepress.org/hbr/vol1/iss2/4
Evaluating the Effects of the Teen Outreach Program on Positive Youth Development Constructs

Rita DeBate, PhD  
Helen Mahony, MPH  
Ellen M. Daley, PhD  
Wei Wang, PhD  
Stephanie L. Marhefka, PhD  
Sarah B. Maness, PhD  
Markku Malmi, MPH  
Robert Ziemba, PhD  
Charlotte A Noble, MA, MPH  
Eric R. Walsh-Buhi, MPH, PhD*

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.

*Corresponding author can be reached at: ebuhi@sdsu.edu

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 \( \geq 25 \) program sessions, sessions over the span of 9 months, and \( \geq 20 \) 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, \( \geq 25 \) weekly lessons, and \( \geq 20 \) 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

Eligible students included all students who were enrolled in a Health, HOPE, or Leadership class, except in high schools where random subsampling occurred at the class level. Youth were deemed ineligible if: a) they were not enrolled in a class randomly selected for the evaluation; b) they joined a participating class after the time at which the robo-call was made and permission forms were distributed; or c) they had any illness or disability that prevented them from participating in survey. A total of 4432 youth have been determined to be eligible for the survey.

Youth Assigned to Treatment (n = 2075)
- Completed Baseline (n = 1722)
  - Dates of Data Collection: Aug. – Sept. 2013
  - Reasons for Non-Completes
    - No Consent (n = 126)
    - Absence (n = 93)
    - No Assent (n = 127)
    - Error (n = 7)

Youth Assigned to Control (n = 2357)
- Completed Baseline (n = 1957)
  - Dates of Data Collection: Aug. – Sept. 2013
  - Reasons for Non-Completes
    - No Consent (n = 131)
    - Absence (n = 50)
    - No Assent (n = 212)
    - Error (n = 7)

Eligible for First Follow-Up (n = 2075)
- Completed First Follow-Up (n = 1271)
  - Dates of Data Collection: May – Sept. 2014
  - Reasons for Non-Completes
    - No Consent (n = 120)
    - Absent or Moved (n = 251)
    - No Assent (n = 170)
    - Error (n = 1)
    - Removed from Evaluation (n = 262)

Eligible for First Follow-Up (n = 2357)
- Completed First Follow-Up (n = 1487)
  - Dates of Data Collection: May – Sept. 2014
  - Reasons for Non-Completes
    - No Consent (n = 133)
    - Absent or Moved (n = 278)
    - No Assent (n = 457)
    - Error (n = 2)

Program Start Date(s):
- September 2013
Program End Date(s):
- June 2014
The 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) |
|----------------|----------------------|--------------------|
|                | n (%)                | n (%)              |
| **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)*

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

Acknowledgements

This study was conducted under Grant Number TP1AH000017-01 from the U.S. Office of Adolescent Health (OAH), U.S. Department of Health and Human Services (HHS). The authors have no conflicts of interest to report, financial or otherwise.

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**

| Measure      | $\chi^2$ (df) | RMSEA | RMSEA 90% CI | CFI    | Cronbach’s Alpha (α) |
|--------------|---------------|-------|--------------|--------|----------------------|
| Character    | 2070.08 (166) | 0.056 | 0.054, 0.058 | 0.922  | 0.88                 |
| Competence   | 1239.62 (101) | 0.056 | 0.053, 0.058 | 0.940  | 0.86                 |
| Caring       | 500.44 (27)   | 0.070 | 0.065, 0.076 | 0.952  | 0.82                 |
| Connection   | 1641.13 (185) | 0.047 | 0.045, 0.049 | 0.960  | 0.92                 |
| Confidence   | 1506.30 (43)  | 0.097 | 0.092, 0.101 | 0.901  | 0.89                 |

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

Allen J. P., & Philliber S. (1991). Evaluating why and how the Teen Outreach Program works: Years 3 – 5 of the Teen Outreach national replication (1986/87 – 1988/89). New York, NY: Association of Junior Leagues International.

Allen, J. P., & Philliber, S. (2001). Who benefits most from broadly targeted prevention program? Differential efficacy across populations in the Teen Outreach Program. Journal of Community Psychology, 29(6), 637-655. https://doi.org/10.1002/jcop.1040.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), Testing structural equation models (pp. 136-162). Newbury Park, CA: Sage.

Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2004). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. The ANNALS of the American Academy of Political and Social Science, 591(1), 98-124. https://doi.org/10.1177/0002716203260102.

Gavin, L. E., Catalano, R. F., David-Ferdon, C., Gloppen, K. M., & Markham, C. M. (2010). A review of positive youth development programs that promote adolescent sexual and reproductive health. Journal of Adolescent Health, 46(3 Suppl), S75-91. https://doi.org/10.1016/j.jadohealth.2009.11.215.

Holm, S. (1979). A simple sequentially rejective multiple test procedure. Scandinavian Journal of Statistics, 6(2), 65-70.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1-55. https://doi.org/10.1080/10705519909540118.

Kirby, D. (2007). Emerging answers 2007: Research findings on programs to reduce adolescent pregnancy and sexually transmitted diseases. Washington, DC: National Campaign to Prevent Teen Pregnancy.

Lerner, R. M., Lerner, J. V., Almerigi, J. B., Theokas, C., Phelps, E., Gestsdottir, S., . . . von Eye, A. (2005). 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. The Journal of Early Adolescence, 25(1), 17-71. https://doi.org/10.1177/0272431604272461.

Roth, J. L., & Brooks-Gunn, J. (2003). What exactly is a youth development program? Answers from research and practice. Applied Developmental Science, 7(2), 94-111. https://doi.org/10.1207/S1532480XADS0702_6.

Schafer, J. L. (1997). Analysis of incomplete multivariate data. New York, NY: CRC Press.

Walsh-Buhi, E. R., Marhekfa, S. L., Wang, W., Debate, R., Perrin, K., Singleton, A., . . . Daley, E. M. (2016). The impact of the Teen Outreach Program on sexual intentions and behaviors. Journal of Adolescent Health, 59(3), 283-290. https://doi.org/10.1016/j.jadohealth.2016.05.007.

Wyman. (2016). Wyman’s Teen Outreach Program (TOP). Retrieved from http://teenoutreachprogram.com/