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Evaluating the Effectiveness of a School-Based Cognitive Behavioral Youth Depression Prevention Program in Improving Life Satisfaction

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Introduction

- Depression:
  - Leading cause of disability worldwide - global burden of disease.[1]
  - Incident cases from 1990 to 2017 have increased by 49.86%.[2]
- Rates of depression dramatically rise in adolescents aged 18-25 (17%) compared to the rates in individuals aged 10-14 (1.1%), making it beneficial to have prevention programs for middle school aged children.[3,4]
- Although there are effective treatments, they are difficult to access for many.
- Youth depression prevention programs are effective on average but there has been insufficient focus on evaluating effects on life satisfaction and functional outcomes.
- Penn Resiliency Program (PRP): a youth depression prevention program focused on cultivating healthy thinking styles and behavioral coping skills.[5]
- Goal: We used archival data from a randomized clinical trial of PRP to evaluate whether the program led to improvements in life satisfaction in adolescents.[6]

Description of Study[6]

- Randomized Control Trial with 3 conditions:
  - Penn Resiliency Program for adolescents (PRP-A)
  - PRP for adolescents and parents (PRP-AP)
  - Usual Care Control
- Middle school students (between ages 10-15) from two school districts in the Philadelphia area
- Cognitive-Behavioral program with 10-12 sessions
- Students reported overall life satisfaction (Satisfaction with Life Scale; Diener et al., 1985[7]) at 3 time points:
  - Baseline
  - 6 months (follow-up)
  - 18 months (follow-up)
- We used linear mixed effects modeling to evaluate the data collected from the PRP clinical trial.
  - Random intercepts to capture between-child variability in levels of life satisfaction

Figures

Figure 1

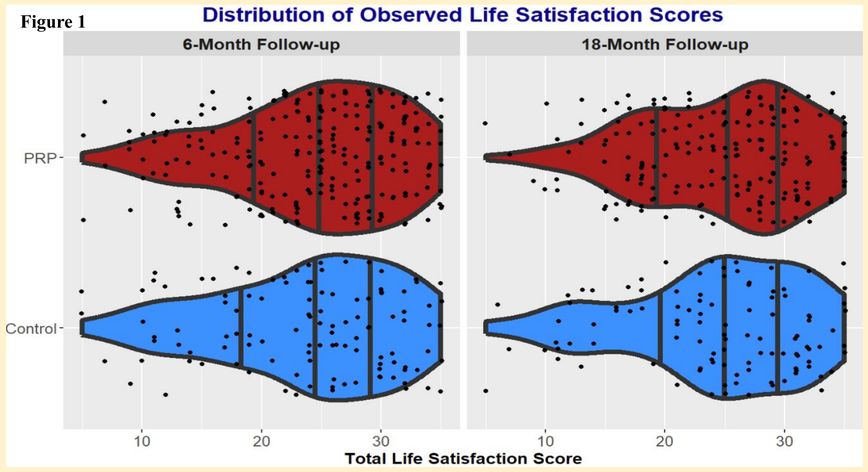
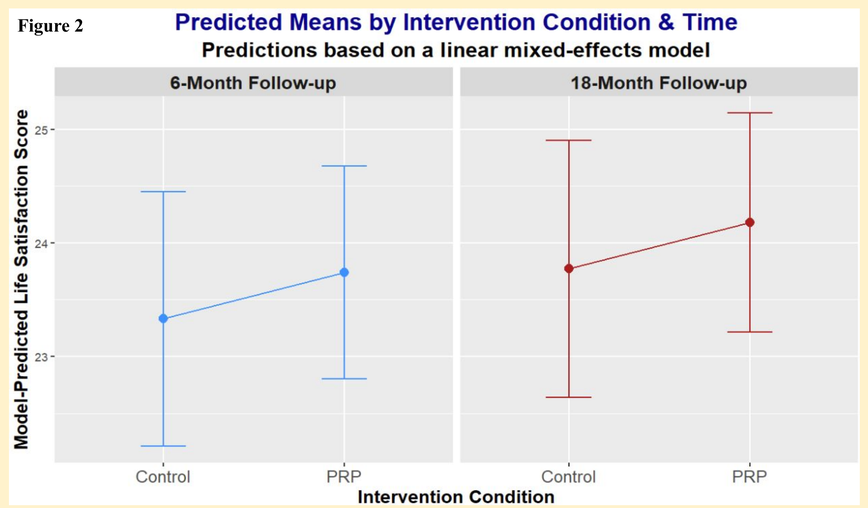


Figure 2



Children in PRP scored 0.06 standard deviations (95% CI: -0.10, 0.21) higher on average on overall life satisfaction than peers in the control group.

Figure 3

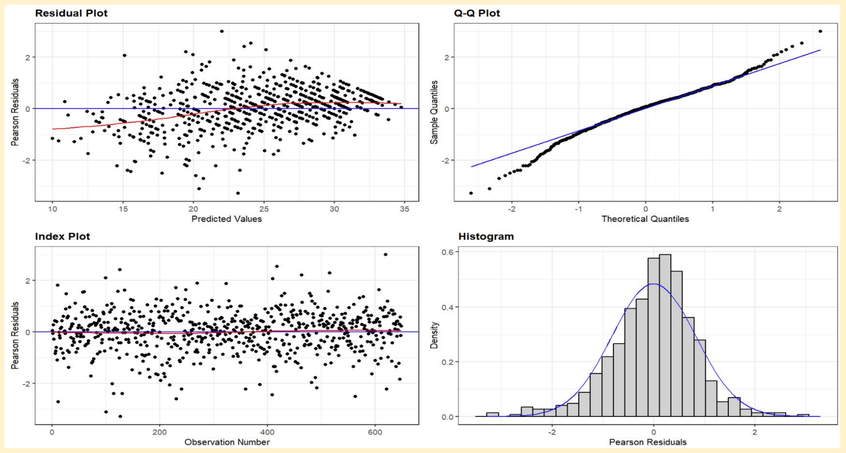


Figure 4: Characteristics of Experimental Groups

	Control (N=129)	PRP (N=279)	Overall (N=408)
Child Gender			
Female	62 (48.1%)	132 (47.3%)	194 (47.5%)
Male	67 (51.9%)	147 (52.7%)	214 (52.5%)
Child Race/Ethnicity			
American Indian/Alaskan Native	0 (0%)	1 (0.4%)	1 (0.2%)
Asian	5 (3.9%)	11 (3.9%)	16 (3.9%)
Pacific Islander/Native Hawaiian	0 (0%)	1 (0.4%)	1 (0.2%)
African American/Black	15 (11.6%)	33 (11.8%)	48 (11.8%)
White	101 (78.3%)	211 (75.6%)	312 (76.5%)
Latinx	2 (1.6%)	10 (3.6%)	12 (2.9%)
Other	5 (3.9%)	11 (3.9%)	16 (3.9%)
Missing	1 (0.8%)	1 (0.4%)	2 (0.5%)
Maternal Education Level			
Some high school	1 (0.8%)	8 (2.9%)	9 (2.2%)
High school graduate	22 (17.1%)	54 (19.4%)	76 (18.6%)
Some college	26 (20.2%)	51 (18.3%)	77 (18.9%)
College graduate	36 (27.9%)	80 (28.7%)	116 (28.4%)
Some graduate training	13 (10.1%)	23 (8.2%)	36 (8.8%)
Graduate degree	31 (24.0%)	59 (21.1%)	90 (22.1%)
Missing	0 (0%)	4 (1.4%)	4 (1.0%)
Child School Grade Level			
6th grade	63 (48.8%)	139 (49.8%)	202 (49.5%)
7th grade	38 (29.5%)	80 (28.7%)	118 (28.9%)
8th grade	28 (21.7%)	60 (21.5%)	88 (21.6%)
Child Age			
Mean (SD)	12.1 (1.01)	11.9 (0.940)	12.0 (0.962)
Median [Min, Max]	12.0 [11.0, 14.0]	12.0 [10.0, 15.0]	12.0 [10.0, 15.0]
Missing	0 (0%)	1 (0.4%)	1 (0.2%)

Results

- Children in PRP tended to report slightly higher levels of life satisfaction, but these differences were not statistically significant with $\alpha = 0.05$ (Figure 1).
- We did not find compelling evidence that children in PRP reported higher life satisfaction levels than those who received no intervention (Figure 2).
- Residual diagnostic analyses showed minor departures from normality in our residuals at high and low ends of the distribution, but overall the statistical model assumptions appeared to be reasonable (Figure 3).

Conclusion and Future Direction

- The data does not show enough evidence to conclude that life satisfaction was improved.
- The largest benefit compatible with our data would be 0.21 standard deviations, generally considered small.
- Consequently, we can rule out PRP having anything greater than a small effect on life satisfaction.
- Future research should also look at functional outcomes: e.g., the child's academic and social wellbeing.

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ABSTRACT

Depression is the leading cause of disability worldwide, known as the global burden of disease.[1] Incident cases from 1990 to 2017 have increased by 49.86%.[2] Additionally, rates have been seen to dramatically rise in adolescents aged 18-2 (17%) compared to rates in individuals aged 10-14 (1.1%).[3,4] This makes it beneficial to have prevention programs for middle school aged children. The Penn Resiliency Program (PRP) is a youth depression prevention program focused on cultivating healthy thinking styles and behavioral coping skills.[5] In our study, we used archival data from a randomized control trial of PRP to evaluate whether the program led to improvements in life satisfaction in adolescents.[6] Life satisfaction was reported using the Satisfaction with Life Scale by Diener.[7] We used mixed effects modeling to evaluate the data collected from the PRP clinical trial. It was found that children in PRP tended to report slightly higher levels of life satisfaction, but these differences were not statistically significant. We did not find compelling evidence that children in PRP reported higher life satisfaction levels than those who received no intervention. Residual diagnostic analyses showed minor departures from normality in our residuals at high and low ends of the distribution, but overall the statistical model assumptions appeared to be reasonable. In conclusion, the data does not show enough evidence to conclude that life satisfaction was improved. Future research should look at functional outcomes: e.g., the child's academic and social wellbeing.

References:

1. KMotturi G. Depression. World Health Organization. Accessed June 12, 2023. https://www.who.int/health-topics/depression#tab=tab_1.
2. Liu Q, He H, Yang J, Feng X, Zhao F, Lyu J. Changes in the global burden of depression from 1990 to 2017: Findings from the Global Burden of Disease study. *J Psychiatr Res*. 2020;126:134-140. doi:10.1016/j.jpsychires.2019.08.002
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