

# Champaign County Final Report

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## Introduction

### PLL Youth are

- 10-18 years old
- Probation violators, repeat offenders, or youth who possess a felony or serious misdemeanor charge
- Moderate to high risk on YASI

### Study Sample

This study includes 155 youth who either graduated from or dropped out of Parenting with Love and Limits (PLL) between April 2009 and December 2011, and could be matched to juvenile justice records.

PLL serves as an Alternative to Placement (ATP) treatment program to engage, stabilize, and treat youth and their families within the community or provides a Transition/Linkage Program for youth from the Juvenile Detention Center who are returning to the community.

### Research Questions

PLL is designed to achieve specific outcomes both during treatment and after treatment. The Champaign Juvenile Probation Department asked these questions to evaluate the effectiveness of PLL:

#### Research Question 1

Does PLL achieve a high level of parent participation, which is a condition of graduation, as evidenced by a graduation rate of at least 70%?

#### Research Question 2

Do PLL youth show significant improvement in mental and behavioral health as measured by the Child Behavior Checklist (CBCL)?

#### Research Question 3

Do PLL families show improved adaptability and cohesion as measured by the Family Adaptability and Cohesion Evaluation Scale IV (FACES)?

#### Research Question 4

Does PLL decrease recidivism rates in the year following treatment compared to a matched control group? The Champaign Juvenile Probation Department defines recidivism as “A subsequent juvenile adjudication or adult conviction or judgment for violation of probation.”

#### Research Question 5

Were PLL lengths of service shorter than standard community mental health or probation cases?

For questions 2, 3 and 5, additional PLL youth (those with no juvenile justice records and completers and non-completers through June 2012) are included in the analysis.



## Research Question 1: PLL Graduation Rates at 70% or Higher

### Graduation Rate Highlights

- 72% overall (111 completers and 44 non-completers in the QE Study)
- Very little variation in graduation rates by referral type
- Statistically significant differences in graduation rates for youth with school offenses or no charges

**Does PLL achieve a high level of parent participation, which is a condition of graduation, as evidenced by a graduation rate of at least 70%?**

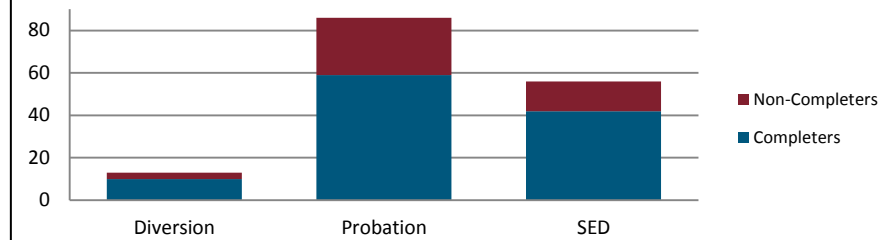
In order to graduate from PLL, the youth/family must:

- Attend and participate in at least 5 group therapy sessions
- Attend and participate in at least 6 family coaching sessions
- Remain at home with no curfew violations or running away
- Remain in school with no reports of truancy or failing grades
- Stay out of trouble with no reports of law violations or problems at home
- Stabilize any mental health issues

**Table 1: Graduation Rate**

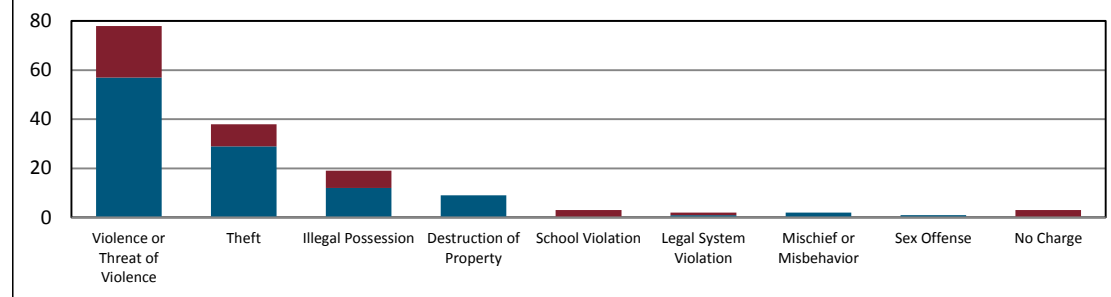
	Number	Percentage
<b>Successful Completers</b>	<b>111</b>	<b>72%</b>
Non-Completers	44	28%

**Chart 1: Graduates by Referral Type**



- The overwhelming majority (92%) of PLL youth are referred from probation or SED.

**Graduates by Offense Type**



- PLL graduated 74% of the highest risk violent offenders.
- The significantly lower graduation rates for youth with no charges or school violations suggest that youth or their parents are less likely to commit to change when the offense is perceived as minor.

## Research Question 2: Improvement in Mental and Behavioral Health

### CBCL Highlights

- Dramatic reductions in nearly every problem behavior
- Effect sizes predominantly in the medium range

### Do PLL youth show significant improvement in mental and behavioral health as measured by the Child Behavior Checklist (CBCL)?

A primary goal of Parenting with Love and Limits is to reduce emotional and behavioral problems among the youth served. Using the Child Behavior Checklist, 128 PLL youth in Champaign County were assessed by a parent or guardian prior to the start of services and again at the conclusion of PLL treatment. These results include youth who graduated through June 2012.

**Table 2: CBCL Analysis**

Behavioral Scale		Pre-Test		Post-Test		t-Test for Equality of		Effect Size*	
		Mean	Standard Deviation	Mean	Standard Deviation	t-Statistic	p-Value	Cohen's d	Common Interpretation
Internalizing Subscales	Anxious	3.99	4.45	3.09	3.41	3.094	<b>0.001</b>	-0.229	Small
	Withdrawn	3.79	3.15	2.70	2.66	4.834	<b>&lt;0.001</b>	<b>-0.378</b>	Medium
	Somatic	2.54	3.27	1.89	2.34	2.742	<b>0.003</b>	-0.228	Small
Total Internalizing		10.38	9.22	7.75	7.07	3.969	<b>&lt;0.001</b>	<b>-0.322</b>	Medium
Externalizing Subscales	Rule-Breaking	8.99	5.53	6.62	4.60	6.383	<b>&lt;0.001</b>	<b>-0.467</b>	Medium
	Aggressive	11.67	7.81	8.63	6.78	6.538	<b>&lt;0.001</b>	<b>-0.417</b>	Medium
Total Externalizing		20.63	12.12	15.02	10.18	7.294	<b>&lt;0.001</b>	<b>-0.503</b>	Medium
Social Problems		3.44	3.58	2.58	2.80	3.528	<b>&lt;0.001</b>	-0.267	Small
Thought Problems		3.04	3.39	2.15	2.51	4.047	<b>&lt;0.001</b>	-0.299	Small
Attention Problems		7.01	4.33	5.36	3.63	6.293	<b>&lt;0.001</b>	<b>-0.414</b>	Medium
Oppositional/Defiant		5.26	2.80	3.87	2.52	7.344	<b>&lt;0.001</b>	<b>-0.525</b>	Medium
Conduct Disorder		9.82	6.12	6.69	4.98	7.443	<b>&lt;0.001</b>	<b>-0.563</b>	Medium

\* When Cohen's d < 0.3, the effect size is generally interpreted as small; 0.3 ≤ Cohen's d ≤ 0.8 indicates a medium effect size; Cohen's d > 0.8 corresponds to a large effect.

Table 2 shows exceptionally strong results in the areas of

- Rule-Breaking Behaviors
- Aggressive Behaviors
- Total Externalizing Behaviors
- Attention Problems
- Oppositional/Defiant Behaviors
- Conduct Disorder

The average pre-test score for PLL youth was in the clinical range for Total Externalizing Behaviors. The average post-test score was low in the borderline range between clinical and normal.

## Research Question 3: Improvement in Overall Family Adaptability and Cohesion

### FACES Highlights

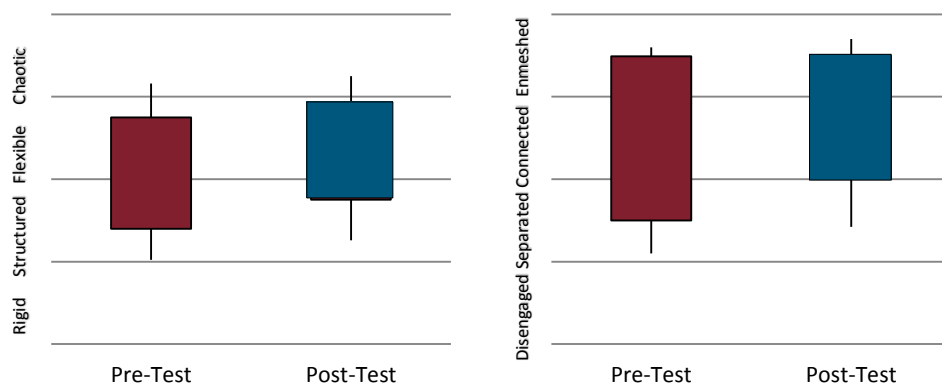
- Negligible changes in means
- Significant reduction in variability shows improvement in both adaptability and cohesion

### Does PLL improve family adaptability and cohesion as measured by the Family Adaptability and Cohesion Evaluation Scale IV (FACES)?

FACES measures a family's adaptability on a scale from rigid through structured and flexible to chaotic, and measures a family's cohesion similarly from disengaged through separated and connected to enmeshed. Families are functioning better when not at either extreme of these measures.

FACES is administered to PLL youth and one or both parents at the beginning and end of PLL treatment. A total of 183 pre- and post-tests pairs were analyzed.

Chart 3: Adaptability and Cohesion



The box-and-whisker plots show the 10<sup>th</sup> percentile (bottom whisker), 20<sup>th</sup> percentile (bottom of box), 80<sup>th</sup> percentile (top of box) and 90<sup>th</sup> percentile (top whisker). The post-tests show the responses more tightly grouped in the moderate range on both scales, especially on the Cohesion scale.

Table 3: FACES IV Analysis

Scale	Mean		Variance		Levene's Test for Equality of Variances	
	Pre-Test	Post-Test	Pre-Test	Post-Test	W	Significance or p-value
Adaptability	59.41	63.25	380.82	309.17	3.91	<0.05
Cohesion	52.59	57.35	296.64	247.29	7.64	<0.01

The statistical test to evaluate the significance of the moderation seen in the chart is Levene's Test for Equality of Variances, shown in Table 3. **The differences are significant in both cases**, but, as can also be seen graphically in Chart 3, the results are more significant for Cohesion than Adaptability.



## Methodology: Sample Characteristics and the Need for Propensity Score Matching

### PLL Youth include

- Higher percentage of Black youth
- Higher percentage of violent offenders
- Higher percentage of precipitating offense felonies
- Higher percentage of Urbana contacts

### PLL Youth

- Younger at time of first offense
- Greater number of prior contacts and prior charges
- More severe offenses

Table 4: Sample Characteristics

		PLL		Pool		Significance or p-value (2-tailed)
		#	%	#	%	
		155	-	3529	-	
Race	<b>Black</b>	108	<b>69.7%</b>	2090	<b>59.2%</b>	<b>0.006</b>
	White	46	29.7%	1320	37.4%	<b>0.040</b>
Gender	Male	115	74.2%	2436	69.0%	0.151
Juvenile Justice History	<b>Age At First Offense</b>	<b>14.5</b>	-	<b>15.6</b>	-	<b>&lt; 0.001</b>
	<b># of Prior Arrests</b>	<b>3.5</b>	-	<b>2.3</b>	-	<b>&lt; 0.001</b>
	<b># of Prior Charges</b>	<b>1.6</b>	-	<b>0.8</b>	-	<b>&lt; 0.001</b>
	<b>Greatest Severity (0 = most severe)</b>	<b>3.0</b>	-	<b>4.1</b>	-	<b>&lt; 0.001</b>
	Age At Precipitating Offense	15.4	-	16.0	-	<b>&lt; 0.001</b>
Domain of Precipitating Offense	<b>Violence/Threat of Violence</b>	77	<b>49.7%</b>	1305	<b>37.0%</b>	<b>0.002</b>
	Destruction of Property	7	4.5%	206	5.8%	0.441
	Theft	40	25.8%	779	22.1%	0.298
	Illegal Possession	14	9.0%	575	16.3%	<b>0.002</b>
	Legal System Violation	1	0.6%	35	1.0%	0.602
	School Violation	1	0.6%	39	1.1%	0.490
	Sex Offense	1	0.6%	106	3.0%	<b>0.001</b>
	Mischief/Misbehavior	9	5.8%	244	6.9%	0.565
Precipitating Offense Type	<b>Felony</b>	78	<b>50.3%</b>	1170	<b>33.2%</b>	<b>&lt; 0.001</b>
	Misdemeanor	71	45.8%	2025	57.4%	<b>0.005</b>
	<b>Precipitating Offense Severity (0 = most severe)</b>	<b>4.0</b>	-	<b>4.9</b>	-	<b>&lt; 0.001</b>
Agency	<b>Urbana</b>	39	<b>25.2%</b>	560	<b>15.9%</b>	<b>0.009</b>
	Champaign	70	45.2%	1447	41.0%	0.308
	Rantoul	20	12.9%	448	12.7%	0.940
	Sheriff	12	7.7%	651	18.4%	<b>&lt; 0.001</b>

Table 4 shows that PLL youth represent a more difficult sub-section of the juvenile justice population taking into account the demographic risk factors, the domain of precipitating offense and the offense type.

## Methodology: Quality of the Propensity Score Matching

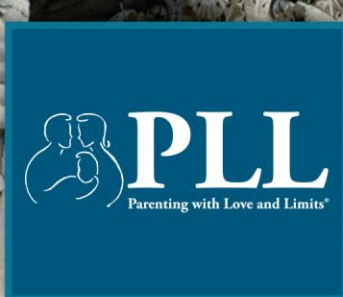
### Propensity Score Matching

- Excellent match overall
- No statistically significant differences between PLL graduates and the matched control group

Table 5: PLL Graduates vs. Controls

		PLL Graduates		Controls		Significance or p-value (2-tailed)
		#	%	#	%	
		111	-	155	-	
Race	Black	74	66.7%	112	72.3%	0.331
	White	36	32.4%	42	27.1%	0.350
Gender	Male	76	68.5%	109	70.3%	0.747
Juvenile Justice History	Age At First Offense	14.5	-	14.4	-	0.245
	# of Prior Arrests	3.3	-	3.3	-	0.561
	# of Prior Charges	1.5	-	1.4	-	0.881
	Greatest Severity (0 = most severe)	3.1	-	3.1	-	0.955
	Age At Precipitating Offense	15.3	-	15.3	-	0.891
Domain of Precipitating Offense	Violence/Threat of Violence	56	50.5%	82	52.9%	0.693
	Destruction of Property	5	4.5%	6	3.9%	0.801
	Theft	30	27.0%	35	22.6%	0.410
	Illegal Possession	9	8.1%	16	10.3%	0.535
	Legal System Violation	0	0.0%	2	1.3%	0.157
	School Violation	0	0.0%	3	1.9%	0.082
	Sex Offense	1	0.9%	0	0.0%	-
Precipitating Offense Type	Mischief/Misbehavior	5	4.5%	8	5.2%	0.805
	Felony	55	49.5%	86	55.5%	0.340
	Misdemeanor	54	48.6%	60	38.7%	0.107
	Precipitating Offense Severity (0 = most severe)	4.0	-	4.0	-	0.516
Agency	Urbana	29	26.1%	41	26.5%	0.953
	Champaign	52	46.8%	73	47.1%	0.968
	Rantoul	11	9.9%	17	11.0%	0.780
	Sheriff	7	6.3%	12	7.7%	0.649

This propensity score comparison assures us that subsequent analysis on juvenile recidivism is valid for PLL graduates vs. the matched control group.



## Research Question 4: Reduction in Recidivism

### Does PLL decrease recidivism rates in the year following treatment compared to a matched control group?

#### PLL Graduates

- Significantly fewer adjudications and felony adjudications

#### PLL Graduates

- Significantly fewer contacts and felony contacts

#### PLL Graduates

- Significantly fewer charges
- Fewer felony charges

#### PLL Graduates

- Fewer incarcerations and residential commitments

Outcomes Within 1 Year of Completion	Recidivism Rate		t-Test for Statistical Significance			Effect Size
	PLL	Matched Control Group	t-Statistic	Degrees of Freedom	Significance or p-value (1-tailed)	Relative Risk
Adjudications	12.6%	21.3%	1.905	263	<b>0.029</b>	<b>59.2%</b>
Felony Adjudications	9.0%	16.1%	1.774	262	<b>0.039</b>	<b>55.9%</b>

- The rate of adjudications for juveniles released from standard non-PLL services (21.3%) was nearly double that of the PLL group (12.6%), a difference that was statistically significant at the 0.029 level.
- Similar results for felony adjudications, with 16.1% compared to only 9% for those receiving PLL services.

Outcomes Within 1 Year of Completion	Recidivism Rate		t-Test for Statistical Significance			Effect Size
	PLL	Matched Control Group	t-Statistic	Degrees of Freedom	Significance or p-value (1-tailed)	Relative Risk
Contacts	36.9%	51.0%	2.303	259	<b>0.011</b>	<b>72.4%</b>
Felony Contacts	18.9%	28.4%	1.824	263	<b>0.035</b>	<b>66.5%</b>

Contacts include arrests as well as appearance tickets. They represent the lowest level of involvement with the justice system. PLL youth are significantly less likely to have any subsequent contacts.

Outcomes Within 1 Year of Completion	Recidivism Rate		t-Test for Statistical Significance			Effect Size
	PLL	Matched Control Group	t-Statistic	Degrees of Freedom	Significance or p-value (1-tailed)	Relative Risk
Charges	19.8%	32.9%	2.448	263	<b>0.008</b>	<b>60.2%</b>
Felony Charges	15.3%	21.3%	1.26	263	0.104	

PLL youth are also significantly less likely to be charged.

Outcomes Within 1 Year of Completion	Recidivism Rate		t-Test for Statistical Significance			Effect Size
	PLL	Matched Control Group	t-Statistic	Degrees of Freedom	Significance or p-value (1-tailed)	Relative Risk
Incarcerations	2.7%	6.5%	1.498	250	0.068	





## Research Question 5: Shorter Length of Service

### Length of Service Highlights

- PLL lengths of service are significantly shorter than historical figures
- The reduction is over 510 days for probation youth, and approximately 100 days for community mental health cases.

### Were PLL lengths of service shorter than standard community mental health or probation cases?

Historically, Champaign County reports an average length of service of youth community mental health cases of seven months (210 days), and an average probation length of 20 months (600 days).

In contrast, PLL serves people both more quickly and more effectively. Table 10 compares the mean and median lengths of service for 138 PLL graduates to standard treatment durations.

**Table 10: Length of Service**

		PLL			
		Mean		Median	
		Days	Months	Days	Months
Referral Type	Diversion	66.6	2.2	57.0	1.9
	<b>Probation</b>	<b>88.7</b>	<b>3.0</b>	<b>72.0</b>	<b>2.4</b>
	<b>Community MH</b>	<b>110.3</b>	<b>3.7</b>	<b>90.0</b>	<b>3.0</b>
PLL Overall		97.4	3.2	81.0	2.7
Community MH		210	7.0		
Probation Services		600	20.0		

The differences are very large and statistically significant for both probation and SED.

### Summary of Findings

- ✓ **Research Question 1:** Graduation rate 72% overall.
- ✓ **Research Question 2:** Statistically significant improvement in youth mental and behavioral problems as shown by changes in CBCL scores during treatment, with medium effect size.
- ✓ **Research Question 3:** Statistically significant improvement in family adaptability and cohesion as measured by FACES.
- ✓ **Research Question 4:** Statistically significant reduction in multiple measures of recidivism (adjudications, charges and contacts) in one year post graduation for PLL when compared to a matched control group.
- ✓ **Research Question 5:** PLL length of service is shorter than historical averages both for probation and community mental health. Differences are statistically significant and effect size is very large.