

Statewide Implementation of Parenting with Love and Limits Among Youth with Co-Existing Internalizing and Externalizing Functional Impairments Reduces Return to Service Rates and Treatment Costs

Emma M. Sterrett-Hong¹ · Eli Karam¹ · Lynn Kiaer²

© Springer Science+Business Media New York 2017

Abstract Many community mental health (CMH) systems contain inefficiencies, contributing to unmet need for services among youth. Using a quasi-experimental research design, we examined the implementation of an adapted structural-strategic family intervention, Parenting with Love and Limits, in a state CMH system to increase efficiency of services to youth with co-existing internalizing and externalizing functional impairments (PLL $n=296$; Treatment-As-Usual $n=296$; 54% male; 81% Caucasian). Youth receiving PLL experienced shorter treatment durations and returned to CMH services at significantly lower rates than youth receiving treatment-as-usual. They also demonstrated significant decreases in internalizing and externalizing symptoms over time. Findings lay the foundation for further examination of the role of an adapted structural-strategic family treatment in increasing the efficiency of CMH systems.

Keywords Children · Mental health system · Treatment duration · Treatment cost

Background

Improving treatment for children suffering from mental illness is a national priority. Approximately one out of every five children in the United States experiences a mental

health difficulty (CDC 2013; Merikangas et al. 2010). On average, 40–75% of children in the United States with mental health disorders do not receive the services they need (Mental Health America 2015; NIMH 2001). Due to federal sequestrations, states across the country have sustained cuts in funding for community mental health treatment (NAMI 2011). Relatedly, policy reports and empirical papers have documented the insufficient availability of therapists in publicly funded mental health systems (e.g., Fund 2010; Cummings et al. 2014; Hyde 2013). The disproportionate number of youth seeking treatment to therapists is expected to increase as more people in the United States gain access to healthcare through the Affordable Care Act (Garland et al. 2013). Importantly, youth living in rural areas face even lower availability of therapists, including those trained in evidence-based practices, as well as less accessibility due to higher levels of stigma toward therapy than youth in urban areas (Anderson et al. 2013; Cummings et al. 2014; Peterson et al. 2009).

Despite the high levels of unmet need for mental health treatment in the United States, the mental health treatment that is provided is costly to society and families. In fact, out of all conditions affecting children, mental health disorders cost the most to treat (Soni 2009). The Centers for Disease Control and Prevention (CDC) estimates the annual cost of child mental health disorders to be \$247 billion (CDC 2013). One explanation for both unmet need and the relatively high cost of mental health treatment when provided are inefficiencies in mental health systems (Lagomasino et al. 2010). Efforts to improve efficiency in mental health systems can address any factors that minimize cost for a given output, such as improved clinical functioning (Lagomasino et al. 2010). Factors that could improve efficiency in mental health systems include increasing the use of evidence-based treatments, providing treatment in

✉ Emma M. Sterrett-Hong
emma.sterrett@louisville.edu

¹ Couple and Family Therapy Program, Kent School of Social Work, University of Louisville, 310 N. Whittington Pkwy, Burhans Hall 134, Louisville, KY 40222, USA

² Hornby Zeller Associates, Inc., Troy, USA

Table 3 Comparison of PLL graduates with TAU youth in the Idaho child mental health system at baseline after propensity score matching following a protocol adherence approach

	Control (n = 246)		PLL (n = 246)		χ^2 or F	p
Sex						
Female	117	3.73%	117	47.56%	*	1.00
Male	129	4.11%	129	52.44%		
Race						
Native American/Alaska Native	6	0.19%	5	2.03%	0.77	0.98
Asian	2	0.06%	1	0.41%		
Black	8	0.25%	1	0.41%		
Hawaiian/other Pacific Islander	0	0.00%	0	0.00%		
Mixed	29	0.92%	26	10.57%		
Unknown	9	0.29%	10	4.07%		
White	192	6.12%	197	80.08%		
Ethnicity						
Hispanic	21	0.67%	21	8.54%	2.78	0.96
Not Hispanic	104	3.31%	101	41.06%		
Unknown	121	3.86%	124	50.41%		
Age						
Start of treatment	14.57		14.6		0.04	0.84
CAFAS scores						
Behavior toward others	22.32		21.34		1.17	0.28
Community	18.7		17.89		0.59	0.44
Home	26.42		25.41		0.89	0.35
Moods/emotions	22.97		22.52		0.40	0.53
School/work	23.82		22.28		1.76	0.19
Self harmful behavior	10.16		10.65		0.21	0.65
Substance abuse	6.18		6.39		0.22	0.64
Thinking	4.59		3.94		0.87	0.35

*Fisher's exact test

Table 4 Intent-to-treat comparison of return-to-service rates between PLL youth and youth in the comparison group

Outcomes within 1 year of completion	Percentages		t test for statistical significance			Effect size
	PLL (n = 296) (%)	Control (n = 296) (%)	t	DF	p	Relative risk (%)
Out-patient treatment	35.14	89.53	16.50	502	<0.001	39.25
Crisis services	8.45	26.35	5.91	497	<0.001	32.05
In-patient hospitalization	2.70	8.78	3.21	469	<0.001	30.77
Residential/alternate care placement	2.70	8.45	3.07	474	0.001	32.00
Overall return to services	39.19	94.93	17.92	409	<0.001	41.28

Return to Service Rates

Intent-to-treat Analyses Intent-to-treat analyses, in which all youth assigned to PLL, regardless of whether they completed the treatment program (Have et al. 2008), were compared to youth in the TAU group were also conducted. Across all four categories of services, out-patient treatment,

crisis services, inpatient hospitalizations, and residential/alternate care placement, youth in the PLL group returned to services post-discharge at significantly lower rates than youth in the comparison group (see Table 4), with meaningful effect sizes in the form of relative risk, defined as the ratio of the likelihood a youth receiving PLL would return to a treatment setting compared to that a youth receiving

Table 6 Child behavior checklist (CBCL) analysis with sub-sample ($n=156$) of PLL youth

CBCL scales	Pre-test		Post-test		Raw score change	<i>t</i>	<i>p</i>	Effect size
	Raw score <i>M</i>	t-score <i>M</i>	Raw score <i>M</i>	t-score <i>M</i>				
Internalizing								
Anxious	8.22	66	5.65	61	2.57	6.82	<0.001	0.49
Withdrawn	5.55	64	3.89	59	1.66	8.43	<0.001	0.53
Somatic	4.65	66	3.19	61	1.46	5.89	<0.001	0.40
Externalizing								
Rule breaking	11.92	68	8.35	64	3.57	9.49	<0.001	0.67
Aggressive	18.93	72	13.68	65	5.25	9.57	<0.001	0.64
Social problems	7.02	67	5.17	63	1.85	6.86	<0.001	0.44
Thought problems	6.97	68	5.16	66	1.81	6.46	<0.001	0.41
Attention problems	10.26	64	8.12	61	2.14	7.75	<0.001	0.44
Other problems	7.51	69	5.83	65	1.68	6.69	<0.001	0.42
Oppositional defiant	7.10	72	5.32	64	1.78	9.02	<0.001	0.69
Conduct problems	14.24	71	9.90	66	4.33	10.48	<0.001	0.69

Somatic somatic complaints, *Rule-breaking* rule-breaking behavior, *Aggressive* aggressive behavior, *Oppositional defiant* oppositional defiant problems

t-scores ≤ 64 = normal range, $65 \leq$ t-scores ≤ 69 = borderline range, t-scores ≥ 70 = clinical range

296 youth, including savings from both shorter initial treatment duration and lower rates of return to treatment, ranges from \$936, 925.00 to \$1,475,657.

Within Group Analyses

Symptom Reduction in PLL Group

We were able to obtain pre- and post-CBCL scores from the CMH clinical records of a subsample of PLL graduates ($n=156$). Consistent with predictions, after Bonferroni corrections for multiple tests, youth receiving PLL demonstrated statistically significant reductions in CBCL raw scores. Significant reductions were observed in all eleven problem scales or subscales examined, including rule breaking, \leq aggressive, anxious, withdrawn, somatic complaints, social problems, thought problems, attention problems, other problems, oppositional defiant behavior, and conduct disorder, all $p < .001$ (see Table 6). With regard to clinical significance, the mean t-score for the Oppositional Problems sub-scale moved from the Clinical (i.e., t-score ≥ 70) to Normal (i.e., t-score ≤ 64) range from pre-test to post-test, and the mean scores on the Aggressive Behavior and Conduct Problems subscales each moved from the Clinical to the Borderline (i.e., $65 \leq$ t-score ≤ 69) range. The mean t-scores for the Anxious, Somatic Complaints, Rule-Breaking Behavior, Social Problems, Thought Problems, and Other Problems subscales moved from the Borderline to the Normal range. Mean t-scores for the Withdrawn and Attention Problems subscales also

decreased, but were in the Normal range at pre-test and remained so at post-test (see Table 6).

Discussion

The current study is part of a growing literature examining efforts to match mental health treatment service delivery to the realities of clinical presentation and availability of therapists in the community mental health workforce. Many public mental health systems are utilizing measures of functional impairment for assessment and treatment planning purposes (Barwick et al. 2014; Ebesutani et al. 2008), and coexisting internalizing and externalizing difficulties is more common than single types of difficulties among children and adolescents in community mental health treatment (Angold et al. 1999; Copeland et al. 2013). Moreover, youth exhibiting co-occurring internalizing and externalizing difficulties often experience longer treatment durations and return to treatment at higher rates than youth experiencing only one mental health difficulty (Hodges and Wotring 2000; Nobile et al. 2003; Riosa et al. 2011). In addition, community mental health systems are plagued by shortages of therapists in general, as well as therapists trained in evidence-based treatments (Fund 2010; Cummings et al. 2014), leading to waitlists and substantial percentages of youth who do not receive the mental health treatment they need. In recognition of this dynamic, the U.S. federal government recently passed the Excellence in Mental Health Act (S.264) to provide funding for eight



Parenting with Love and Limits (PLL)

Date of Review: June 2008

Parenting with Love and Limits (PLL) combines group therapy and family therapy to treat children and adolescents aged 10-18 who have severe emotional and behavioral problems (e.g., conduct disorder, oppositional defiant disorder, attention deficit/hyperactivity disorder) and frequently co-occurring problems such as depression, alcohol or drug use, chronic truancy, destruction of property, domestic violence, or suicidal ideation. The program also has been used with teenagers with less extreme behaviors. PLL teaches families how to reestablish adult authority through consistent limits while reclaiming a loving relationship. It includes six multifamily sessions, conducted by two facilitators, that employ group discussions, videotapes, age-specific breakout sessions, and role-play. Individual families also receive intensive 1- to 2-hour therapy sessions in an outpatient or home-based setting to practice the skills learned in the group setting. Three or four family therapy sessions are recommended for low- to moderate-risk adolescents; up to 20 sessions may be recommended for those with more severe problems such as involvement with the juvenile or criminal justice system. PLL's integration of group sessions and family therapy is designed to help families apply skills and concepts to real-life situations and prevent relapse.

Descriptive Information

Topics	Co-occurring disorders, Mental health treatment, Substance abuse treatment
Areas of Interest	Alcohol (e.g., underage, binge drinking), Criminal/juvenile justice, Violence prevention
Outcomes	Outcome 1: Conduct disorder behaviors Outcome 2: Readiness for change and parent-teen communication Outcome 3: Parental attitudes and behavior Outcome 4: Youth attitudes and behavior Outcome 5: Self-perception of substance abuse
Study Populations	Age: 6-12 (Childhood), 13-17 (Adolescent) Gender: Female, Male Race: Black or African American, Hispanic or Latino, White, Race/ethnicity unspecified (See Study Populations section below for percentages by study)
Settings	Home, Outpatient, Rural and/or frontier, Suburban, Urban
Implementation History	PLL has been widely used in the United States, Canada, and the Netherlands. As of 2008, 21 sites in the United States and 5 sites in the Netherlands have been licensed to implement the intervention.
Replications	No replications were identified by the applicant.
Adaptations	PLL materials have been translated into Dutch and Spanish.
Adverse Effects	No adverse effects, concerns, or unintended consequences were identified by the applicant.
Public or Proprietary Domain	Proprietary
Costs	<p>In the United States, program costs typically range from \$1,000 to \$1,500 or more per youth served. This cost includes the following services:</p> <ul style="list-style-type: none">• Five-day on-site clinical training• Weekly or biweekly quality assurance and clinical adherence telephone consultations (2 hours every 2 weeks for 48 weeks)• Outcome research and analysis that includes an independently conducted, published program evaluation on recidivism rates and the clinical effectiveness of PLL• One on-site visit to observe delivery of PLL for quality assurance purposes• Videotaped supervision of therapist to facilitate treatment fidelity• Ongoing consultations as needed to answer questions outside the weekly telephone consultations <p>Parent and teen workbooks must be purchased for each family. These include the book "Parenting Your Out-of-Control Teenager: 7 Steps To Reestablish Authority and Reclaim Love" and a Study Guide. The cost is \$54 per family.</p> <p>Additional information on program costs is available from the intervention developer.</p>
Institute of Medicine Category	Indicated