

**Meeting the complex needs of urban youth and their families through the 4Rs 2Ss Family  
Strengthening Program: The “real world” meets evidence-informed care**

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Abstract

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Youth of color, living within communities impacted by poverty, face enormous challenges and exposure to a wide range of threats, including community-level violence, crime, and increased exposure to serious health conditions, such as substance abuse or HIV infection (Atkins et al., 2010; Brooks-Gunn & Duncan, 1997; Horowitz, McKay, Marshall, 2005). In response, urban families attempt to counteract the negative impact on their children by employing specific strategies, in particular, drawing on positive racial/ethnic socialization parenting practices, as well as trying to buffer their children’s exposure to neighborhood dangers by limiting outside community relationships and time spent away from the home/family (Jarrett, 1995; Rodriguez et al. 2008; Bannon et al., 2008). Despite their best efforts, low-income minority youth evidence the effects of “toxic” stressors and present overlapping vulnerabilities in disproportionate numbers (Brown et al., 1997; Capaldi et al., 2002; Houck, et al., 2006; Tubman et al., 2003). For example, African-American and Latino youth residing in low-income urban communities have been found to be at 4 to 6 times greater risk for serious conduct difficulties in comparison to same-age peers (Angold & Costello, 2001; Tolan & Henry, 1996).

These high rates of conduct difficulties may be explained by both the direct impact of exposure to social ills, but also the robust body of evidence suggesting that attempting to navigate multiple and persistent stressors can undermine parenting and family protective factors over time. Such stressors can (1) disrupt effective parenting practices (Hausman & Hammen, 1993; Rossi, 1994); (2) undercut protective aspects of family life, such as regular and consistent family interaction and communication opportunities (Fiese et al., 2002; Keizer et al., 2005; Kliwer & Kong, 1998); and (3) create a sense of danger and uncertainty that can heighten family conflict and undermine social ties (Baum et al., 1981; Gabarino & Kostelny, 1992; Zill, 1996). These disruptions are often compounded by the adult caregivers’ attempts to cope with their own high levels of stress (Burt & Cohen, 1989). Increased parental stress may

be transmitted via the parent-child relationship which directly affects the child's development and the strength of the adult protective shield (Lieberman & Van Horn, 2004).

Delivering engaging and high impact family-strengthening preventative, support and service options capable of helping families address youth behavioral difficulties as they continue to experience stressful circumstances is simultaneously critically necessary and a daunting challenge for public child mental health systems, organizations and providers (Atkins et al., 2010; Hoagwood et al., 2010; McKay et al., 2010; 2011). Currently, even when linkages are made to the public child mental health system, lack of service capacity as evidenced by long waiting times for appointments and engagement challenges are prevalent (Gopalan et al., 2010; McKay et al., 2010). For example, numerous research studies, now summarized in several reviews of the engagement literature, have identified a range of concrete (e.g., lack of time, transportation, competing appointments and priorities), perceptual (e.g. concerns related to stigma and negative expectations based on prior interactions with helpers as hindering engagement and receipt of needed care) and system (e.g. dearth of trained providers, availability of appointments) obstacles that interfere with receipt of appropriate services (Bannon et al., 2004; Gopalan et al., 2010). Thus, there is a serious need to create evidence-informed service models capable of: 1) addressing the serious needs of urban youth; 2) engaging high needs families; 3) retaining them long enough to address prevalent conduct difficulties; 4) being embedded in urban service systems with scarce service resources and; 4) meeting the often multiple, complex needs of urban families.

#### Family-strengthening approaches to address youth conduct difficulties in the “real world”

The use of family-based interventions for children exhibiting serious behavioral difficulties and their families has gained substantial empirical support (Bank et al., 1991; Webster-Stratton, 1985; 1990; 2010; Sexton and Alexander, 2002). Many of these evidence-based family interventions focus on parent management training or parenting skills (Carr, 2000; Farmer, Compton, Burns, and Robertson, 2002; Keiley, 2002; Cottrell and Boston, 2002) via behavioral rehearsal or practice, modeling, feedback, coaching, as well as goal setting, family communication, action plans, and building on family strengths

(Chorpita et al., 2002; Prinz & Jones, 2000). However, it is important to note that “real world” workforce preparation in the areas of systematic, evidence-informed work with parents, families and groups has been identified as areas of weakness, thus creating implementation challenges for many evidence-informed services targeting childhood conduct difficulties (Salerno et al., 2011).

Further, providers in urban practice settings frequently note that child conduct difficulties are not the only presenting issue for families (Hammen et al., 1999). In fact, the clinical picture is often complex with there being compelling youth need, but also high levels of family challenge, particularly high levels of family stress, family safety issues, including child welfare involvement and parental mental health need or substance use. Thus, too often, existing evidence-informed family-strengthening models are perceived as unresponsive to addressing the complex presenting needs of youth and families by urban service providers.

This paper focuses on an evidence-informed service meant to address multiple child and family needs simultaneously via a family-focused, group-delivered model. This model, referred to as the 4Rs and 2Ss Family Strengthening Program, is a protocol driven multiple family group (MFG) approach to enhancing aspects of family life empirically linked with youth conduct difficulties. The 4Rs and 2Ss Family Strengthening Program was most recently examined within an experimental effectiveness study embedded within urban child mental health clinics, all set in high-poverty communities (see McKay et al., 2010; 2011 for details). At baseline, families presented with youth evidencing clinically meaningful, serious conduct difficulties. At the same time, significant proportions of families identified numerous challenges, including those referred to above (high levels of family stress, safety issues, including child welfare involvement and parental mental health need). Thus, the ability of the 4Rs and 2Ss Family Strengthening service model to engage, retain and potentially impact the full range of youth and their families is the focus of this paper.

#### 4Rs and 2Ss Family Strengthening Program

A robust existing literature suggests that family factors have been consistently implicated in the onset and maintenance of childhood behavioral difficulties (Dishion, et al., 1995; Kilgor et al., 2000;



Loeber et al., 1998). Kazdin and Whitley (2003) also emphasize specific family factors tied to socioeconomic disadvantage, social isolation, high stress and lack of social support, may undermine parenting and contribute to childhood conduct problems (Keiley, 2002; Kumpfer & Alvarado, 2003; Wahler & Dumas, 1989). This body of research can be summarized under four broad conceptual categories related to parenting skills and family processes that form the targets for the 4Rs 2Ss multiple family group service delivery approach. Rules, Responsibility, Relationships and Respectful communication (named via collaboration with adult caregivers of youth evidencing behavioral difficulties to summarize the evidence base in a manner that: 1) increases the understanding of parents and providers about the importance of specific aspects of family life in the remediation of childhood behavioral difficulties; 2) enhances the relevance of addressing parenting and family processes, while simultaneously reducing parental or family blame for youth conduct difficulties. In addition, Stress and Social support were added to targets of the 4Rs 2Ss Family Strengthening Program as these have been found to impact child service engagement and outcome) (see McKay et al., 2010; 2011 for a fuller description of the 4Rs 2Ss development process). See Table 1 for a summary of evidence-informed targets of the service model.

Insert Table 1 about here

MFGs are defined as: 1) a mental health service that involves 6 to 8 families; 2) an intervention that is facilitated by trained clinicians or a clinician and parent advocate; 3) a treatment where at least two generations of a family are present in each session and; 4) psychoeducation and practice activities that foster both within family and between family learning and interaction (O'Shea & Phelps, 1985). The 4Rs 2Ss Family Strengthening Program involves school-age, inner-city children (7 to 11 years) meeting diagnostic criteria for Oppositional Defiant or Conduct Disorders and their families (including adult caregivers, siblings over 6 years) in a 16-week series of groups.

The development of the guiding intervention protocol was informed by recommendations offered by Weisz (2001) and Hoagwood, Burns & Weisz (2002), whereby any new clinic or community-based

service model in development (CID) begin with piloting in “real world” settings and attend to “nuisance” characteristics of the service delivery process (e.g. characteristics of clinical populations, preferences of consumers, high demand for services and scarcity of service providers) in order to address the significant challenges related to adopting, integrating and sustaining new practices in “real world” child systems (Bickman 1996; Burns & Hoagwood, 2004; Hoagwood & Burns, 2005; Weissman et al., 2006; Weisz et al 2004).

Three of these “nuisance” characteristics (high levels of family stress, safety issues, including child welfare involvement and parental need) and their impact on engagement, retention and outcomes associated with the 4Rs and 2Ss Family Strengthening Program are the focus here.

#### Complex Clinical Presentations of Urban Families: Family Stress, Child Welfare Involvement and Parental Mental Health

Not only are inner-city youth with challenging behavioral problems negatively affected by extremely stressful circumstances related to poverty, under-resourced schools, substance abuse, lack of access to child mental health clinics, exposure to health epidemics, community violence, and other negative life events (Harrison, McKay & Bannon, 2004; McKay & Bannon, 2004; Monuteaux, 2007), but prior studies cite that nearly every caregiver living in urban neighborhoods experiences parenting stress on some level (Crnic & Greenberg, 1990). Prior studies have also established links between caregivers and their children who live in poverty and increased likelihood of caregivers developing mental health concerns as compared to caregivers not living in poverty (Pettersen & Albers, 2001; Radloff, 1975). Liaw and Brooks-Gunn (1994) concluded that 28% of mothers living in poverty also reported high levels of caregiver depression, and highly stressed mothers of families living in poverty often exhibit impairments in not only perceived parenting capacity (Russell, Harris & Gockel, 2008), but they also report decreases in positive parenting practices over time (Kotchick, Dorsey & Heller, 2005; Wahler & Dumas, 1989).

Kazdin & Whitley (2003) describe the combination of childhood behavioral problems along with parent-level contextual factors such as caregiver stress as existing as a “package” that collectively affect

treatment outcomes. In other words, youth disruptive behavioral disorders and caregiver stress often co-exist, and the “package” of both child behavioral difficulties as well as caregiver stress must both be addressed to optimize treatment outcomes. Abidin (1975) also described a combination of key caregiver characteristics (e.g. caregiver stress, caregiver depression) in combination with a set of youth characteristics (e.g. behavior) that collectively define the multi-faceted experience of parenting stress, and these child and caregiver factors in conjunction with negative life events and community-level stressors contribute to an increased risk of decreased parenting practices over time (Abidin, 1975; Morgan, Robinson, & Aldridge, 2002).

Furthermore, children whose mothers experience mental health problems are at four to seven times increased odds of also having an emotional or behavioral diagnosis (Ghandour et al., 2012) as compared to children whose mothers are without mental health diagnosis. In turn, higher levels of childhood behavioral problems are predictive of higher levels of caregiver stress (Anastopoulos et al., 1992; Gillberg et al., 1983; Mash & Johnston, 1983; Webster-Stratton, 1988; Morgan, Robinson, & Aldridge, 2002). Additionally, prior studies (Murray, 1992) have confirmed the potentially deleterious effects of maternal depression and child behavioral problems throughout development. Therefore, it may be necessary to examine both child and caregiver mental health needs within families seeking help within child mental health clinics, and if warranted, to investigate strategies that target both child and caregiver mental needs in a way that promotes overall increased family functioning.

Baseline caregiver stress and depression are often not the only baseline factors contributing to the wide range of outcomes in response to child mental health treatment. More specifically, prior research studies have determined that higher rates of behavioral difficulties are exhibited by children who remain with their primary caregivers after the family has experienced a child welfare investigation (Gopalan, 2012; Lau & Weisz, 2003; Leslie, Hurlburt, James, Landsverk, Slymen, & Zhang, 2005). Families involved in the child welfare system are exposed to multiple co-occurring stressors, which hinder their mental health treatment engagement. Families involved in the child welfare system report a greater

number of barriers to attending child mental health service appointments, compared to families not involved in the child welfare system (Gopalan 2012). Negative experiences with the child welfare system or the absent of a therapeutic alliance may also result in early withdrawal from services. (Kerkorian, McKay, & Bannon, 2006; Palmer, Maiter, & Manji, 2006). In sum, creating evidence-informed service delivery models that can embed within complex, often under resourced care systems, be delivered by current workforce and can engage and retain youth and families presenting complex needs is critical and challenging. The 4Rs and 2Ss Family Strengthening Program was an attempt to address these serious urban child mental health service delivery challenges.

### Methods

The current study examines the influence of common complex presenting problems (family level stress, child welfare involvement and parental need) on involvement in youth with serious conduct difficulties and their families in the 4Rs 2Ss multiple family group intervention over a 16 week service delivery period. First overall rates of attendance of families in the 4Rs 2Ss program relative to receipt of standard care are reviewed (see McKay et al., 2010; 2011 for additional details). Then, the effects of baseline family stress, parental depression, and child welfare involvement at baseline are explored relative to overall attendance are explored. Finally, emerging evidence that despite complex baseline needs, families involved in the 4Rs 2Ss family strengthening program are reporting improvement in child conduct difficulties and social competencies relative to those receiving typically offered child mental health care is summarized.

### Sample

Caregivers in this study were recruited from October 2006 to October 2010 and from 13 different community-based outpatient child mental health clinics. Each clinic serves urban families in the greater New York City area. Inclusion criteria for the previous trial included: 1) youth between the ages of 7 to 11 years old; and 2) meeting criteria for diagnosis of Oppositional Defiant Disorder or Conduct Disorder as per DSM-IV-TR (APA, 2000) criteria as assessed by a trained research assistant at intake (See

Appendix I for DSM-IV-TR criteria). Caregivers and their children involved in the study were all enrolled in a 16 week multiple family group intervention through their outpatient community mental health clinic. A total of 321 families were enrolled in the study with 224 randomly assigned to the experimental condition and 97 randomly assigned to standard care services.

See Table 2 for detailed demographic information pertaining to the entire sample in this study by condition. Overall, participants were primarily of Latino or African American descent. Further, the majority of participants were low income with just slightly over half of the participants reporting working full-time.

Insert Table 2 about here

Next, given the interest in the impact of complex presenting problems at baseline and involvement in the experimental intervention, 4Rs 2Ss participants were categorized based upon baseline data provided by adult caregivers on two standardized measures described below (parental stress and depressive symptoms) and clustered into three groups (low stress/low depression; moderate stress/depression and high stress/depression). These two variables were grouped together based upon almost perfect correlation between measures ( $r > .90$ ) (See Table 3 for demographic characteristics of these three groups).

Insert Table 3 about here

Finally, Table 4 presents demographic characteristics of the 83 families with a history of child welfare involvement included in the experimental condition relative to those non-child welfare involved families. There were few notable significant differences between all subgroups (note: given the number of comparisons,  $p < .01$  threshold was set).

Insert Table 4 about here

Description of participating outpatient child mental health clinic research sites

The 13 outpatient child mental health clinics involved share common characteristics. All the sites included in the study provide a range of mental health services to youth and their families living in the New York City metropolitan area. Further, the vast majority of youth served at each site are low. Generally, youth and families at each of the sites are members of minority groups with the largest proportion of youth being Latino (with ties to Puerto Rico, Dominican Republic or Mexico) or African American.

#### Recruitment, and informed consent procedures

Institutional Review Board approval was obtained for this study. Providers at each site received information about the study and were given printed materials to provide to their clients about participation in the study. Recruitment strategies included: 1) a strong on-site presence at each of the clinics; 2) on-going reminder telephone contact with clinic supervisor to encourage planning to introduce the study to families scheduled for intake appointments; 3) presentation at staff meetings to problem solve any obstacles to recruitment; 4) meetings with families took place during after school and evening hours and concerted efforts to follow-up with the family immediately upon their expression of interest were made.

Potentially eligible youth and their families (based on an intake diagnosis of ODD and CD made by clinical service providers) were informed of the study by their providers. Then, if the family was interested in learning more about the study, they were contacted by a member of the research staff. Informed consent materials were provided to the family by the research staff. If the adult caregiver provided consent and the youth provides assented, then the research staff administered two screening instruments to determine the presence of clinically significant disruptive behavior difficulties to determine study eligibility. If the youth and family were screened as eligible, then the family was immediately randomly assigned to one of the two study conditions.

#### Description of Multiple Family Group Intervention Protocol

The MFG service delivery strategy is a 16-week series of meetings guided by a protocol (McKay, Gonzales et al., 1995). Groups are held weekly and are facilitated by mental health providers. Groups consist of six to eight families involving adult caregivers and all children over six years of age in the family. Each session follows the same procedures and proceeds through five stages: 1) creating social networks; 2) information

exchange; 3) group discussions; 4) individual family practice and; 5) homework assignment. Each group begins with an opportunity for families to interact. Snacks are provided. The informational portion of the group, which lasts approximately 30 minutes, is facilitated by the providers. Next, the remainder of the time is divided equally between group discussions, family practice exercises and explanation of the homework assignment (Tolan & McKay, 1996).

Content of the MFG focuses on helping families to strengthen four aspects of family life that have been empirically linked to childhood behavioral disorders. Specifically, the intervention focuses on the 4 “Rs” of family life: 1) Rules; 2) Responsibilities; 3) Relationships and; 4) Respectful communication. In addition, four specific weeks are devoted to expanding support for parenting and reducing stressors.

#### Multiple Family Group Delivery:

At each of the clinics involved in the study, agency administrators and clinical supervisors were enlisted to identify potential MFG facilitators. A group meeting with providers was organized by agency leadership. Training of MFG service providers consisted of fourteen modules and was completed in half-days. Training consisted of information related to childhood conduct difficulties, family level factors that have been linked to child mental health outcomes, strategies to enhance engagement and motivation, group facilitation skills and processes specific to MFGs. In addition, participating providers reviewed training videotapes and engage in practice activities and role plays. Providers also received at least two hours per week ongoing supervision which included on-site supervision and group supervisory conferences across research sites.

#### Data collection procedures and instruments.

Data was collected at baseline and attendance data was collected at each MFG session by group facilitators. Outcome data was also collected at midtest (8 weeks), posttest (16 weeks) and 6 month follow-up.

#### Instruments

Extent of involvement in child mental health services was measured by the REACH attendance tracking log which records the number of sessions that each child/family attends in both conditions. Providers with the

assistance of research staff completed these logs weekly. When available, computerized scheduling systems were used to check accuracy of provider reports.

Involvement with child welfare services was measured by a single item asked of adult caregivers at baseline with a set of follow-up probes regarding common types of child welfare involvement (e.g. investigation, enrollment in preventative services, placement).

Parent Stress Index (PSI; Abidin, 1995): The short form of the PSI (38 items) was used to assess stress in the parent-child relationship system. Total child domain score ( $\alpha=.89$ ) was used for parenting stress.

Depression. Caregiver depression was assessed using the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977). The CES-D is a 20-item assessment that examines depression across four subscales, which can be added together to obtain a total depression score: Depressive Affect, Somatic Symptoms, Positive Affect, and Interpersonal Problems (Radloff, 1977).

IOWA Connors Rating Scale. The IOWA CRS (Waschbusch & Willoughby, 2008) is a widely used brief measure of inattentive-impulsive-overactive (IO) and oppositional-defiant (OD) behavior in children completed by parents and teachers. The IOWA Connors Rating Scale consists of ten items each of which is evaluated using a four point likert scale with the following anchors: not at all (0); just a little (1); pretty much (2); and very much (3). The first five items on the IOWA are designed to measure inattentive-impulsive-overactive (IO) behaviors and the second five items are designed to measure oppositional defiant (OD) behaviors. For the current, study, we utilized the OD subscale reported at baseline, mid-test, and post-test. Cronbach's  $\alpha$ s for the baseline, mid-test, posttest, and 6-month follow-up assessments were 0.80, 0.83, 0.86, and 0.86, respectively.

Social Skills Rating System (SSRS). The SSRS (Gresham & Elliot, 1990) assesses behaviors of youth across three subscales: problematic behavior, social skills, and academic skills. Caregivers rate the frequency and importance of specific behavior within each scale along a 3-point likert rating, from 0 ("never") to 2 ("often"). The SSRS Social Skills Subscale (SSRS-SSS), which focuses on the frequency



of occurrence of the social skills of cooperation, assertion, responsibility, empathy, and self-control, was utilized in the current study. The SSRS is a well-validated and reliable measure, and it is one of the most widely utilized instruments for measuring social skills. The internal consistencies of the subscales range from .51 to .91 ( $m = .75$ ). Higher frequency scores indicate more frequent use of prosocial social skills. Cronbach's  $\alpha$ s for the baseline, posttest, and 6 month follow-up assessments for SSRS-SSS were 0.88, 0.91, and 0.92, respectively.

### Data Analysis

Descriptive statistics were computed for all measures. Univariate tests were used to examine significant differences and associations initially. These analyses utilized SPSS statistical software (Version 19). Next, both multivariate analyses including random coefficient modeling (RRM) were performed on attendance rates and outcomes over time. For RRM analyses, the SuperMix program for mixed effects regression models was used (Hedeker, Gibbons, du Toit, & Cheng, 2008). SuperMix uses maximum likelihood estimation to model measurements over time within cases. Within the final model, study participants were nested by the hierarchies of their individual ID, with time treated as a random effect. This form of modeling, also known as hierarchical linear modeling or multilevel linear modeling, allows parameters (intercepts and slopes) for measurements over time within cases to vary between cases, while accurately accounting for correlation between measurements within cases. It also allows for different times and numbers of measurements within people, an appropriate method to model longitudinal change involving data where there is attrition over time with the assumption that the missing data is ignorable (i.e., at least missing at random), which is a reasonable assumption with this data.

### Results

First overall rates of attendance of families associated with the 4Rs 2Ss program relative to receipt of standard care of are presented in Figure 1 (see McKay et al., 2010; 2011 for additional details). More specifically,

approximately 80% of families were retained in the 4Rs 2Ss over the 16 week intervention protocol. High rates of drop out approaching 90% were associated with typical care condition.

Insert Figure 1 about here

Next, at the bivariate level, the association between baseline family stress/ parental depression relative to overall attendance at 4Rs 2Ss group meetings is presented in Table 5. No significant differences in 3-way comparison of attendance for both caregiver stress and comorbid stress/depression groups were found.

Insert Table 5 about here

Table 6 presents the univariate findings for child welfare involved families relative to those families reporting no child welfare involvement.

Insert Table 6 about here

Again, no significant differences were found between these two groups.

Finally, Tables 7 and 8 summarize multivariate analyses. These findings revealed that although child welfare status was not significantly related to attendance, family stress and parental depression were significantly associated with overall involvement in the program.

Insert Tables 7 and 8 about here

Finally, Table 9 and 9a along with Figures 2 and 3 presents overall main effects of involvement in the 4Rs 2Ss Family Strengthening Program relative to typical child mental health care services with significant improvements in child conduct difficulties and social competencies noted for the experimental group. No evidence of moderation effects of family stress, child welfare involvement or parental needs were uncovered.

Insert Table 9, 9a and Figures 2 and 3 about here

## Discussion and Implications

The multiple family group is a family-centered, group delivered, evidence-informed service delivery approach that has been designed based upon research related to factors that impact the engagement and retention of children and families, specifically: 1) seeking services is often associated with stigma (Alvidrez, 1999; McKay et al., 2001); 2) parents of children with mental health difficulties have reported fears of being blamed for their child's problems and these fears may in turn influence decisions to continue in services over time (McKay et al., 1996), and; 3) mutual support and normalization of family struggles with child mental health needs could create more receptivity to treatment and potentially offer encouragement for family-level change needed to reduce child disruptive behavioral difficulties (Brannan et al., 2003; Koren et al., 1997).

Further, the MFG capitalizes on: 1) empirically supported, family-focused approaches consistently associated with reductions in child disruptive behavior (Bank et al., 1991; Kumpfer & Alvarado, 2003; Webster-Stratton, 1985; 1990; Sexton & Alexander, 2002); 2) a protocol driven approach that has been developed with maximum input from youth, adult caregivers and providers and successfully implemented by "real world" service providers across a diverse array of outpatient clinic settings (McKay et al., in press; McKay et al., 1998; McKay, Harrison et al., 2001) and; 3) accumulated data supporting an association between MFG service involvement and improvements in engagement and child/family-level outcomes (McKay et al., in press; Fristad et al., 2003; 2002; McKay, Harrison et al., 2001; McKay, Quintana et al., 1998; Stone & McKay, 1996).

Finally, the MFG service delivery model has been specifically designed to target a set of weakness, namely insufficient capacity and high inefficiency within the current delivery system (Atkins et al., in press; Atkins et al., 2004; McKay et al., 2004). Even the current number of children and their families approaching the public mental health service system far outstrips the availability of services and the number of service providers. It is not unusual for waiting lists for care within communities across the

US to extend for months (Brown et al., 2002). Thus, MFGs are meant to specifically expand opportunities to receive care within provider organizations that struggle with service capacity and adequate levels of funding and which also have no reasonable expectation for additional resources to expand service slots in the near term.

Results indicate that although there were subgroups of families who experienced high levels of stress, parental mental health need and/or child welfare involvement, the 4Rs 2Ss program appeared to be able to engage families with more complex needs overall with some evidence that stress/depression was related to attendance. However, in relation to outcomes, improvements were noted overall over time for experimental group participants relative to comparison services and there was no evidence that baseline needs related to stress/depression or child welfare involvement undermined improvement in child outcomes overall.

These results need to be interpreted cautiously as this is the first test large scale test of the 4Rs 2Ss Family Strengthening Program. These findings are in need of replication with a larger sample of families given sample size may have hampered exploration of these moderators. However, given the high rates of overall attendance modeled in Figure 1, the 4Rs 2Ss shows promise in overcoming the serious engagement challenges too often see within urban service delivery.

**Table 1. Summary of 4Rs 2Ss Family Strengthening Program Evidence-informed Targets**

<b>MFG target</b>	<b>Family process or parenting skill linked with youth conduct problems or associated with positive youth behavioral outcomes</b>
<u>R</u> ules	1) family organization; 2) consistent non harsh discipline practices, including clear behavioral limits, appropriate consequences and reinforcement; 3) parental monitoring and supervision skills
<u>R</u> esponsibility	1) family interconnectedness; 2) positive behavioral expectancies for Youth
<u>R</u> elationships	1) family warmth and attachment; 2) within family support and; 3) time spent together
<u>R</u> espectful Communication	1) family communication; 2) family conflict; 3) parent/child interaction
Stress	1) parenting hassles; 2) parenting stress; 3) life stressors, 4) socio-economic disadvantage
Social support	Social isolation

**Table 2. Demographic Characteristics of Participants by Study Condition**

Characteristic	Total		Experimental (n = 224)		Control (n = 97)	
	n	% <sup>a</sup>	n	% <sup>a</sup>	n	% <sup>a</sup>
<b>Caregiver Ethnicity:</b>						
White/Caucasian	30	9.3	21	9.7	9	9.4
Black/African American	96	29.9	62	28.7	34	35.4
Hispanic/Latino	168	52.3	118	54.6	50	52.1
Native American	3	0.9	2	0.9	1	1
Asian/Pacific Islander	2	0.6	1	0.5	1	1
Other	13	4.1	12	5.6	1	1
<b>Child Ethnicity:</b>						
White/Caucasian	25	7.8	16	7.6	9	9.4
Black/African American	95	29.6	65	31	30	31.3
Hispanic/Latino	156	48.6	111	52.9	45	46.9
Native American	8	2.5	3	1.4	5	5.2
Asian/Pacific Islander	1	0.3	0	0	1	1
Other	21	6.5	15	7.1	6	6.3
<b>Primary Caregiver:</b>						
Mother	252	78.5	174	80.9	78	82.1
Father	6	1.9	5	2.3	1	1.1
Mother and Father	24	7.5	21	9.8	3	3.2
Grandparent	14	4.4	6	2.8	8	8.4
Other	14	4.4	9	4.2	5	5.3
<b>Caregiver Marital Status:</b>						
Single	137	42.7	86	40.2	51	52.6
Married or Cohabiting	105	32.7	79	36.9	26	26.8
Divorced	14	4.4	7	3.3	7	7.2
Separated	44	13.7	34	15.9	10	10.3
Widowed	7	2.2	4	1.9	3	3.1
Other	4	1.2	4	1.9	0	0
<b>Family Income:</b>						
Less than \$9,999	125	38.9	91	44	34	37.8
\$10,000 to \$19,999	80	24.9	54	26.1	26	28.9
\$20,000 to \$29,999	47	14.6	32	15.5	15	16.7
\$30,000 to \$39,999	23	7.2	14	6.8	9	10
\$40,000 to \$49,999	5	1.6	3	1.4	2	2.2
Over \$50,000	17	5.3	13	6.3	4	4.4
<b>Caregiver Education Status:</b>						
8th Grade or Less	32	10	27	12.6	5	5.2
Some High School	91	28.3	60	27.9	31	32.3
Completed H.S./G.E.D.	77	24	51	23.7	26	27.1
Some College	70	21.8	47	21.9	23	24
Completed College	21	6.5	16	7.4	5	5.2
Some Grad/Prof. School	6	1.9	5	2.3	1	1

Competed Grad/Prof. School	14	4.3	9	4.2	1	5.2
<b>Caregiver Employment Status:</b>						
Employed Full-Time	75	23.4	54	25	21	22.1
Employed Part-Time	53	16.5	39	18.1	14	14.7
Student	18	5.6	13	6	5	5.3
Retired	8	2.5	3	1.4	5	5.3
Disabled	37	11.5	26	12	11	11.6
Unemployed	10					
Other	4	32.4	71	32.9	33	34.7
	16	5	10	4.6	6	6.3
	Experimental			Control		
	<u>n</u>	<u>mean</u>	<u>Standard deviation</u>	<u>n</u>	<u>mean</u>	<u>Standard deviation</u>
<b>Parent age at baseline:</b>	212	36	8.44	95	38	9.3
	20					
<b>Child's age at baseline:</b>	7	9	1.5	91	9	1.3

a. % is out of Total sample size (n = 321)

**Table 3. Demographic Characteristics of Interview Participants by Comorbid Stress/Depression Group**

<i>Demographic Characteristic</i>	<i>Low</i>		<i>Moderate</i>		<i>High</i>	
	<i>(n=57)</i>		<i>(n=90)</i>		<i>(n=44)</i>	
	<i>n*</i>	<i>%**</i>	<i>n*</i>	<i>%**</i>	<i>n*</i>	<i>%**</i>
<b>Caregiver Age (mean ± SD)</b>	57	35.5 ± 8.8	90	34.7 ± 6.5	44	35.7 ± 8.2
<b>Primary Caregiver</b>						
Mother	43	75	78	87	34	77
Father	2	4	0	0	2	5
Grandparent	1	2	2	2	1	2
Mother and father	8	14	7	8	6	14
Other	3	5	3	3	0	0
<b>Caregiver marital status</b>						
Single	20	35	44	49	13	30
Married or cohabitating	25	44	29	32	18	41
Divorced	0	0	3	3	3	7
Separated	8	14	12	13	7	16
Widowed	2	4	0	0	2	5
Other	1	2	1	1	1	2
<b>Caregiver education status</b>						
<sup>†</sup> Eighth grade or less	8	14	9	10	6	14
Some high school	22	39	21	23	11	25
Completed H.S./G.E.D.	9	16	23	26	9	21
Some college	12	21	21	23	11	25
Completed college	3	5	8	9	3	7



Some grad/Prof. school	0	0	2	2	2	5
Completed grad/Prof. school	3	5	5	6	1	2
<b>Caregiver ethnicity</b>						
White/Caucasian	4	7	9	10	4	9
Black/African American	18	32	25	28	10	23
Hispanic/Latino	31	54	51	57	25	57
Native American	2	4	0	0	0	0
Asian/Pacific Islander	0	0	0	0	1	2
Other	2	4	5	5	3	7
<b>Caregiver employment status</b>						
Employed full time	9	16	25	28	10	23
Employed part time	11	19	21	23	5	11
Student	4	7	7	8	2	5
Retired	2	4	0	0	1	2
Disabled	9	16	7	8	7	16
Unemployed	19	33	25	28	18	41
Other	3	5	4	4	1	2
<b>Family income</b>						
Less than \$9,999	29	51	36	40	18	41
\$10,000 – \$19,999	8	14	26	29	11	25
\$20,000 – \$29,999	8	14	13	14	5	11
\$30,000 – \$39,999	6	11	5	6	2	5
\$40,000 – \$49,999	0	0	2	2	1	2
Over \$50,000	4	7	5	6	4	9

No between-group differences are significant at the  $p=0.05$  level.

\*Not all totals sum to  $n = 191$  due to missing data

\*\*Percentages based on total sample ( $n = 191$ ), representing low and high stress caregivers

**Table 4. Demographic characteristics of child welfare vs. non-child welfare involved families**

Characteristic	Child Welfare Involved (n = 83)		Non-Child Welfare Involved (n = 141)	
	<i>N</i>	<i>%<sup>a</sup></i>	<i>n</i>	<i>%<sup>a</sup></i>
<b>Caregiver Ethnicity:</b>				
White/Caucasian	7	3.13	14	6.25
Black/African American	29	12.95	33	14.73
Hispanic/Latino	40	17.86	79	35.27
Native American	0	0.00	2	0.89
Asian/Pacific Islander	1	0.45	0	0.00
Other	6	2.68	6	2.68
<b>Child Ethnicity:</b>				
White/Caucasian	8	3.57	8	3.57
Black/African American	28	12.50	37	16.52
Hispanic/Latino	36	16.07	76	33.93
Native American	1	0.45	2	0.89
Other	6	2.68	9	4.02
<b>Primary Caregiver:</b>				
Mother	66	29.46	109	48.66
Father	4	1.79	1	0.45
Mother and Father	8	3.57	13	5.80
Grandparent	2	0.89	4	1.79

Other	3	1.34	6	2.68
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Caregiver Marital Status:

Single	33	14.73	53	23.66
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Married or Cohabiting	26	11.61	54	24.11
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Divorced	4	1.79	3	1.34
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Separated	15	6.70	19	8.48
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Widowed	0	0.00	4	1.79
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Other	3	1.34	1	0.45
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Family Income:

Less than \$9,999	40	17.86	51	22.77
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\$10,000 to \$19,999	18	8.04	37	16.52
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\$20,000 to \$29,999	14	6.25	18	8.04
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\$30,000 to \$39,999	5	2.23	9	4.02
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\$40,000 to \$49,999	0	0.00	3	1.34
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Over \$50,000	2	0.89	11	4.91
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**Table 5. Mean & Median Attendance between Stress & Comorbid Stress/Depression Groups**

<b>Low Stress Caregivers</b>	<b>Mid Stress Caregivers</b>	<b>High Stress Caregivers</b>	<b>Low Comorbid Stress/Depression Caregivers</b>	<b>Mid Comorbid Caregivers</b>	<b>High Comorbid Caregivers</b>
47	88	56	57	90	44
10.40	9.62	8.34	8.72	10.17	8.84
9.01-11.79	8.54-10.71	6.86-9.82	7.30-10.14	9.15-11.20	7.19-10.49
4.68	5.09	5.51	5.3	4.87	5.43
12	11	8	8	12	10
11-13	10-13	5-12	6-12	10-13	7-12

**Table 6. Univariate analyses of average number of sessions attended for child welfare involved families relative to non-child welfare involved families (by number of sessions offered and percentage offered per quarter – 4 weeks – of intervention)**

Variable	Total (n = 224)			Child Welfare Involved (n = 83)			Non-Child Welfare Involved (n = 141)		
	N	Mean	SD	n	Mean	SD	n	Mean	SD
Mean Attendance	224			80	8.46	4.89	140	9.17	4.97
12 Sessions	42	8.02	4.11	13	7.23	4.38	29	8.38	4.01
16 Sessions	178	9.14	5.11	67	8.70	4.98	111	9.38	5.18
% Attendance									
1st Quarter	220	67.65	32.30	80	66.15	35.16	140	68.51	31.47
2nd Quarter	220	58.33	36.88	80	53.33	35.72	140	61.19	37.36
3rd Quarter	220	53.33	41.21	80	50.00	42.45	140	55.24	40.51
4th Quarter	220	56.29	39.89	80	51.88	39.27	140	58.81	40.56

**Table 7. Multivariate analyses comparing MFG Attendance over time by Child Welfare Status**

Variable	Estimate ( $\beta$ )	Std. Err.	Z-value	p-value	
intercept	0.69	0.03	20.03	0.00	**
Child Welfare <sup>a</sup>	-0.03	0.06	-0.49	0.62	
Attendance (quarter)	-0.04	0.01	-3.65	0.00	**
Child Welfare X Quarter	-0.01	0.02	-0.49	0.63	

\*\* p < .005

a. Child welfare status indicator: 0 = non-child welfare involved, 1 = child welfare involved

Log Likelihood	-142.28
-2 Log Likelihood (Deviance)	284.57
Akaike's Information Criterion	302.57
Schwarz's Bayesian Criterion	332.21
Number of free parameters	9

**Table 8.**

**Mixed Effects - Risk for Dropout (non-attendance)**

Effect	Model 1 <sup>1</sup>					Model 2 <sup>2</sup>					<i>p</i>
	<i>b</i>	SE	HR	95% C.I.	<i>p</i>	<i>b</i>	SE	HR	95% C.I.		
<i>Fixed Effects</i>											
High Caregiver Stress <sup>1</sup>	0.29	0.13	0.75	0.58-0.97	0.03*	--	--	--	--	--	
(Reference: Low Stress)											
High Comorbid Stress/Depression <sup>2</sup>	--	--	--	--	--	0.2	0.14	0.74	0.60-0.91	0.02*	
(Reference: Low Comorbid)											
Childhood Behavioral Difficulties <sup>3</sup>	0.01	0.01	0.99	0.96-1.01	0.37	0.01	0.01	1.01	0.98-1.04	0.57	

\* $p \leq 0.05$  \*\* $p \leq 0.01$  \*\*\* $p \leq 0.001$

<sup>1</sup> Parent Stress Index (PSI-SF; Abidin, 1995). Categorical scale.

<sup>2</sup> Comorbid Stress & Depression Scale ( $\alpha=0.82$ ). Categorical scale.

<sup>3</sup> IOWA Conners Rating Scale (Loney & Milich, 1982). Continuous scale.



**Table 9.**

Means and Standard Deviations for Outcomes Measures by Time and Treatment Group

Variable	MFG								SAU							
	Baseline M (SD)		Mid-test M (SD)		Post-test M (SD)		6 month Follow- up M (SD)		Baseline M (SD)		Mid-test M (SD)		Post-test M (SD)		6 month Follow- up M (SD)	
Iowa Connors OD	9.28	(3.4)	7.7	(3.6)	7.8	(3.8)	7.4	(3.9)	9.1	(3.7)	8.3	(3.5)	9.0	(3.8)	8.83	(4.0)
SSRS-SSS	38.27	(10.6)			43.6	(11.5)	43.2	(12.0)	39.7	(11.1)			39.7	(10.8)	41.51	(12.3)

MFG= Multiple Family Group; SAU= Services As Usual; IOWA Connors ODD= Iowa Connors Oppositional/Defiant Subscale;  
 SSRS-SSS= Social Skills Rating Scale Social Skills Subscale

**Table 9a**

## Tests of Group Differences

Outcome Variable	Assessment Period	Contrast Estimate (b)	SE	Z-statistic	p-value	Effect Size (Cohen's d)
Iowa Connors OD	Mid-test	-0.46	0.52	-0.88	0.38	0.13
	Post-test	-1.22	0.49	-2.47	0.01	*
	6 month Follow-up	-1.17	0.51	-2.29	0.02	*
SSRS-SSS	Post-test	3.44	1.52	2.26	0.02	*
	6 month Follow-up	1.33	1.59	0.84	0.40	0.12

Note. IOWA Connors OD= Iowa Connors Oppositional/Defiant Subscale; SSRS-SSS= Social Skills Rating Scale Social Skills Subscale

\*  $p < .05$

Figure 1.

**MFG Attendance**  
(in comparison to rates on retention in outpatient urban individualized mental health services)

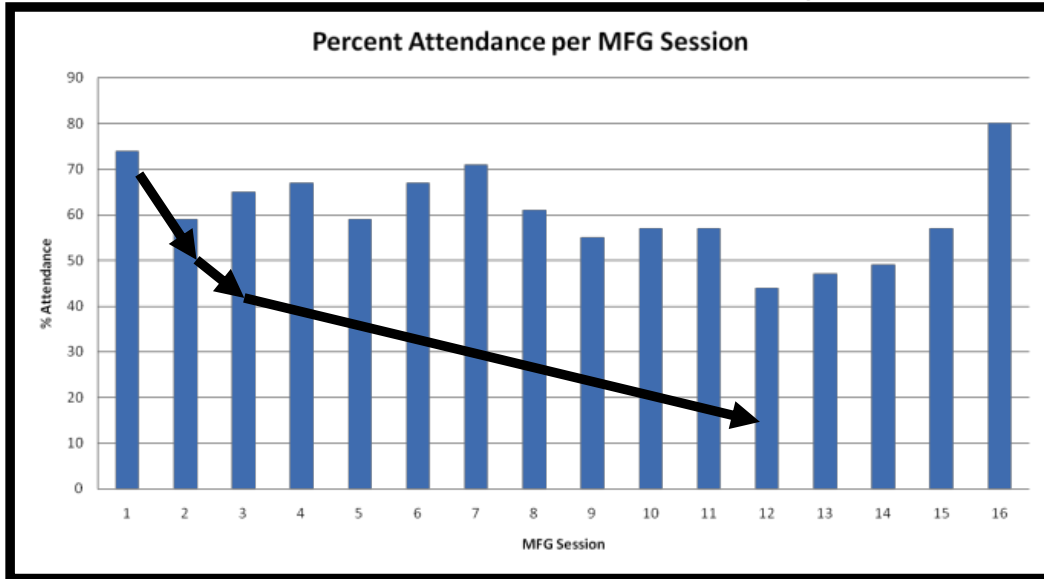


Figure 2

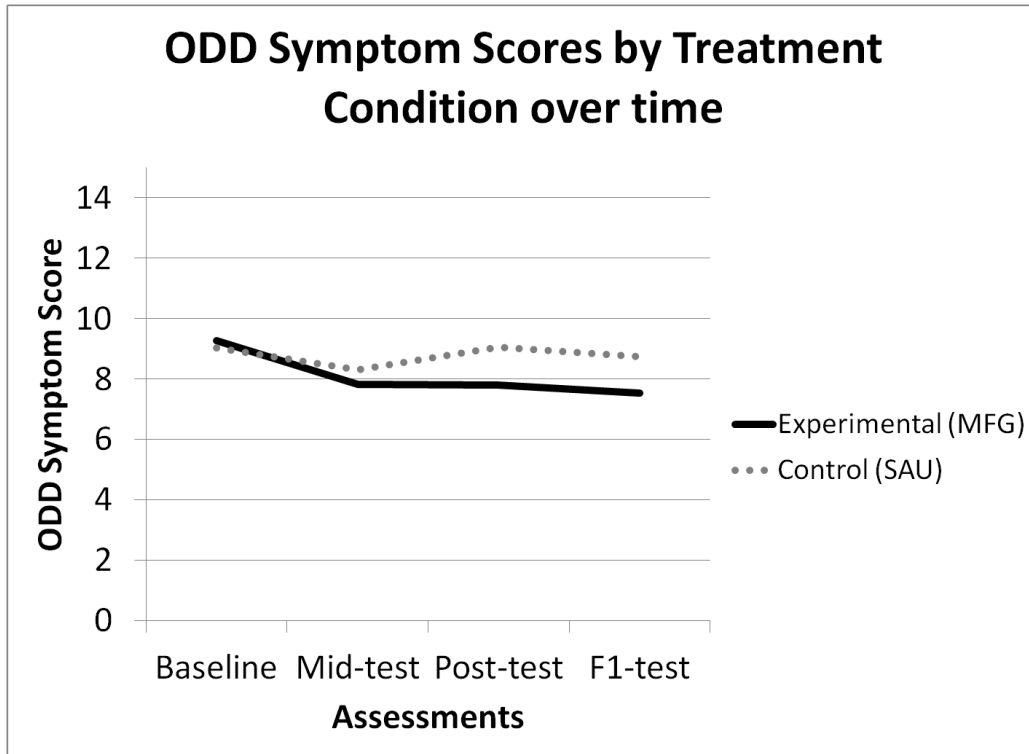


Figure 3

