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Family Support and Connection Groups: Long Term Benefits for Inner-City Children?

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Abstract

Relatively few prevention trials have had long term follow up to determine if immediate impact translates to and explains long term impact. The present report summarizes the long term influence (measured when students are near the end of high school) of the SAFEChildren preventive intervention, which was applied during first grade. This program aims to facilitate and support developmental management, school-family connection, and social support among neighbors through family groups and student tutoring and is focused on families raising children in inner-city neighborhoods. Of the 424 families randomly assigned prior to first grade to intervention or no-intervention control, outcome data on at least one outcome was obtained for 375 (88.4%). Results indicate no long term direct effects and a single mediated effect; with those in the intervention less likely to engage in risky sexual practices. Similar but non-significant trends were found for alcohol use and violence. These mixed results may suggest that family focused intervention that is relatively brief is not adequate to protect against multiple and ongoing developmental risk that arises in such communities. The limited impact is discussed in light of the uncertainty of subsequent condition on initial preventive benefits and the developmental ecology of the inner-

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Conflict of Interest

The authors declare that they have no conflict of interest.

Compliance with Ethical Standards

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of University of Illinois' IRB and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

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city. Implications for preventive intervention programming and for long term evaluation are also addressed.

Examples of long term effects from prevention efforts provided during childhood are accumulating, suggesting that benefits may accrue over development and that early intervention can lead to substantial psychological, health, and economic returns (O'Connell, Boat & Warner, 2009). For example, Hawkins and colleagues (Hawkins, Kosterman, Catalano, Hill, & Abbott, 2005) found that exposing children to a social development curriculum in elementary school resulted in lower rates of violence and increased school bonding during high school, and to improved family and work functioning in the mid-twenties. Kellam and colleagues found that a classroom behavior management program (Good Behavior Game) had long-term benefits including increased high school completion (Bradshaw, Zmuda, Kellam & Ialongo, 2009), and reduced rates of perpetration of violent behavior (Petras, Kellam, Brown, Muthen, Ialongo, & Poduska, 2008), antisocial personality disorder, drug and alcohol abuse and dependence, and tobacco use in adulthood (Kellam, Brown, Poduska, Ialongo, Wang, Toyinbo, 2008). More recently, Stormshak and colleagues (Stormshak, DeGarmo, Chronister, & Carrothers, 2017) tied middle school prevention focused on family support and child self-regulation to lower rates of antisocial behavior in late adolescence. These and other long term reports attest to how early shifts in developmental influences can lead to distal impact.

It is also important to trace how early intervention benefits might explain these distal effects. In a review of long term effects of parenting focused prevention efforts, Sandler, Schoenfelder, Wolchik, and MacKinnon (2011) noted there was a paucity of studies in which long term benefits are tracked to specific early interventions effects. Sandler et al. (2011) suggest that benefits can be related in several ways, by shifting developmental influences, having direct effects on later risk or indirectly by affecting risk exposure and development of related risk factors. This approach emphasizes longer term benefits accruing through early changes that leads to differentiated (more positive) developmental sequela. Similarly, Masten and Cicchetti in discussing the benefits of early intervention (2010) describe a cascade concept of impact, with initial intervention providing changes in subsequent risk exposure, competence, and support for differential trajectories, adding that the proximal-distal influence could be indirect as well as direct. Direct and indirect effect pathways of effects have been noted as of particular relevance for understanding parental and academic skill interventions (cf., Hayes, 2009; Sandler et al., 2011). For example, analysis of the Fast Track intervention found indirect effects (Pasalich, Witkiewitz, McMahon, & The Conduct Problems Prevention Research Group, 2016).

The present study reports long-term effects of a first-grade intervention (at transition into elementary school) provided to families residing in high-risk (inner-city) neighborhoods to help support initial engagement in schools and aid parental capabilities and relationship-based support along with promoting child basic reading mastery. This is a population of great interest due to elevated rates of school failure, crime and violence, and a concentration of social problems (Wilson, 1987). The intent was to enable parents to engage well with school, to remain engaged, to make use of personal and social resources, and to enable the

child with this most fundamental academic skill. The intervention was intended to shift the experience of this developmental transition and related parenting challenges from minimal opportunity and isolation with alienating experiences to one of competence and engagement (Gorman-Smith, Tolan, & Henry, 2005; Tolan, Sherrod, Gorman-Smith, & Henry, 2004). Centered around school transition and success in first grade, the intervention was intended to increase connection to other parents and tap capabilities among them to address the developmental challenges of raising children in poverty where crime rates are high and schools have limited resources. In addition, the group sessions included structured enactment of parenting challenges and practicing and demonstrating more effective parenting, particularly in regard to managing challenging child behavior. By navigating this transition well and being able to access such resources, we expected long term developmental shifts leading to lower aggression and violence, reduced substance use, improved school engagement and completion, and lower sexual health risk.

The intervention was applied to families irrespective of child risk or parenting skills. At times, it was necessary to focus on a particular parental problem or working to modify parenting or child behavior of a particular child. As expected and intended, other members engaged in such moments, providing a mix of support, norming (this parenting is endorsed by us), and advice giving (sharing methods they had used successfully). Importantly, these focused moments did not disrupt the overall group focus and were readily incorporated into the ongoing agenda. Notably, at one year post intervention, for those parents with lower skills and with children with more initial behavior problems, effects were found for both one year post (Tolan, Gorman-Smith, & Henry, 2004).

Focusing on Raising Children in Highest Risk Communities

The disparities in high school completion and crime rates of youth in inner-city communities compared to those elsewhere in the United States has generated considerable concern (Swanson, 2009). Of particular interest are support and intervention programs that might help mitigate harm believed to be due to community features such as concentrated poverty, elevated crime rates, and poor quality of schools (Adler & Newman, 2002; Wilson, 1987). However, in actuality, there are very few long-term studies of effects and even fewer that link early effects to longer term differences (Reynolds, Temple, Robinson, & Mann, 2001).

The value of such study can be seen in the few long studies of long term positive effects in high-risk communities. For example, Reynolds and colleagues (Reynolds, et al., 2001) found that providing inner-city children a quality pre-school program with support during elementary school led to higher rates of school completion and lower rates of criminal justice involvement as young adults. The program provided extensive services during the preschool and early elementary years, often over three years, including academic tutoring, field trips for students, parental guidance and job training, and parental engagement in school. It suggests that early intervention, particularly when substantial, even in impoverished inner-city communities, can have long term benefits. These results are consistent with those found for other multi-faceted, parent-engaging, preschool programs (e.g., Belfield, Nores, Barnett, & Schweinhart, 2006; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002).

Fast Track (Conduct Problems Prevention Research Group, 2013), like SAFEChildren was applied at the entry into elementary school and focused primarily on schools serving lower socioeconomic communities. However, school economic level or urban location was not a basis for inclusion, which instead was based on screening to identify the most aggressive and least socially competent students (those most at-risk for conduct disorder). This highly selective intervention was comprised of multiple components and also was maintained throughout the school years, invoking a different understanding about and analytic model needed for testing distal effects than for relating early intervention to later functioning. Benefits post-intervention exposure (in the late adolescent/early adulthood life stage) were limited to a subset of the high-risk sample included in the trial.

Other efforts focusing on low income parents who are early parents have shown long-term benefits from skill enhancement and personal development of parents for children (Castellanos-Ryan, Seguin, Vitaro, Parent, & Tremblay, 2013; Olds, Henderson, Cole, Eckenrode, Kitzman, Luckey, Pettitt, Sidora, Morris, & Powers, 1998). For example, Olds and colleagues (e.g., Olds, Kitzman, Cole, Hanks, Arcoleo, Anson, ... & Stevenson, 2010) focused nurse support on new young mothers residing within low income neighborhoods providing education, emotional support, vocational enabling, and parenting advice from prenatal through preschool years. This program has shown long term effects for mother's and for children's behavior, although most effects are limited to the most high-risk among the selected samples.

The available studies suggest long term effects for family focused interventions with low income urban families may be realized with multi-component and long term interventions, whether aimed at pre-school years or during the elementary years. Like many of these studies, our focus is on scaffolding parental capabilities and access to development-supporting opportunities, although our approach is unique in the focus on elementary school academic entry as the transition of interest. In addition, our intervention, lasting about 9 months, was less comprehensive and lengthy than these other efforts.

Family Support and School Engagement to Aide Development in High Risk Communities

Often, inner-city families are cast as the source of poor developmental progress (failing to socialize or stimulate effective development, relatively diminished in motivation to parent) or as overwhelmed due to challenges beyond their control. However, an alternative approach centers on the resources in relationships families have internally and with their neighbors and school personnel that can align to negotiate complex demands, limited predictability, and limited control over life and circumstances (Tolan, 2002). As noted in developmental studies, inner-city families face a distinct set of stressors as well as elevated levels of strains on parenting skills (Conger, Conger, & Martin, 2010; McLoyd, 1990). An additional risk factor is that often parents of inner-city youth are more socially isolated than other parents, having to raise children without the help and emotional support typically accessible by parents of young children (Ardelt & Eccles, 2002). Parenting limitations are, from this

approach, seen as differentiated by facing more stress with less social support and resources than occurs elsewhere more than due to personal limitations.

Another consideration in approaching preventive efforts for inner city families is that many are alienated from schools. This may be due to poor school quality or unwelcoming schools, which may result in lower participation in their child's education, and being less about and engaged in the academic success of their child (Desimone, 1999). If so, supporting families in engaging with schools as part of the developmental challenges before them and connecting them to others in the same circumstances may be an effective intervention approach.

These considerations led to the organization of the intervention reported on here, SAFEChildren. This is the first report of long term effects of a randomized control trial of an elementary school transition-focused program intended to enable inner-city children and their parents to utilize personal capabilities, school engagement skills, and social support to promote successful child development and therefore to prevent later problems, universally applied within these communities. Additionally, this program is innovative in emphasizing that the challenges faced by while living in violent and impoverished communities, may be best navigated with the support and connection to neighbors (Tolan, et al., 2004).

Description of the Intervention

The SAFEChildren program was organized as a family group intervention for parents and children as they entered first grade and is comprised of 16 sessions across the school year. Half the students within each first-grade classroom of each participating school were randomly assigned to the intervention and half to no-intervention control. Parents were grouped (5–7 per group) with other parents from the same neighborhood school. Sessions focused on helping parents negotiate community-based risk, use consistent and effective parenting skills, connect to other parents for support and aid, understand what schools expected from parents, and problem-solve about how to engage well with the school to motivate child behavior and achievement. A second component was tutoring of the children in a phonetic-focused mastery-oriented reading skills program (20–24 30-minute sessions per student). Attendance rate was relatively high, with 83% attending at least half of sessions during the one year intervention. Tests of baseline demographic and outcome scores did not yield any significant differences between those who attended half or more and those who did not (Tolan et al., 2004).

At a second stage of study, half of the sample assigned to the first-grade intervention were randomly assigned to a booster intervention of family groups during fourth grade, to test if such later additional support would improve effects. This intervention paralleled the first intervention in themes, major topics, format, and length, with the exception of including developmentally appropriate shifts (e.g. peer influence) and a reading club rather than tutoring (Tolan, Gorman-Smith, Henry, & Schoeny, 2009). The present report focuses on the long-term effects from proximal impact of the first-grade intervention (collapsed across booster exposure), not breaking out effects by whether or not randomly assigned to booster

due to interest in the initial mediators as well as constraints on power for adequate testing of subgroup effects. Booster exposure was included as a control variable in outcomes analyses.

Initial evaluation of the effects of the first-grade intervention, one year after completion, showed that parents in the SAFEChildren program maintained their initial school engagement level (while controls dropped off precipitously). Children in the intervention had reading achievement scores approximating national averages while the controls were a standard deviation below national norms (Tolan, et al., 2004). Moreover, children with greater need (behavioral risk at start of school) showed improved behavior and families with less capabilities (lower parenting skills) showed improved parenting skills and child behavior compared to their counterparts (Tolan et al., 2004). Test of effects one year after completion of the booster intervention revealed that the second intervention helped in maintaining initial benefits, with some spread of effects (e.g. parenting skills) from significant only for higher risk families to becoming main effects (Tolan, et al., 2009).

We hypothesized that participation in the initial intervention during first grade that helped parental involvement in schools and child academic performance would, in turn differentiate developmental course leading to improved functioning in late adolescence including reduced violence, substance use, and risky sexual practices and increased school completion rate.

Procedures

At each data point, child assessment and parental interview were conducted, with teacher reports utilized in the first two data collection phases. Baseline scores were obtained at the end of Kindergarten and or beginning of first grade (for new students, ages 5–6), with additional data collection of parent and child information at post-test (end of first grade) and 12 month follow-up. At the second phase data was collected at the outset of 4th grade (10 years old, baseline for booster evaluation) with additional data collection the end of 4th grade (post-test for booster test), the end of 5th grade, and the end of 6th grade (12 years old), Long term follow-up was undertaken at the point most students would have been in 11th grade (age 16–17) and the last wave was obtained at or near the typical end of 12th grade (ages 17–18).

Archival data was collected to correspond roughly with each wave of interview/surveys. The parent interview included surveys about the adolescent's behavior, social competence, parenting practices, family relationship characteristics, peer relationships, and stressful life experiences. The youth interview included similar survey areas, adding measures of academic achievement, delinquent involvement, substance use, and sexual behavior. Computer based and assisted interviews and rating responses were used to assure that response validity and facilitate proper administration branching patterns. Twenty-five percent of interviewees were re-contacted to ensure that the interviewers maintained fidelity to the interview protocol.

Method

Participants

Seven Chicago Public Schools engaged in a prior longitudinal risk study, selected because they served neighborhoods with elevated rates of poverty and crime for the city, were engaged to collaborate for this project. All parents with a child in Kindergarten and those new at the school at the start of first grade were included in recruitment. Consent occurred in two stages; agreement to be randomized to intervention or comparison and then consent to participate in the intervention if so randomized. A total of 424 consenting families (84% of those eligible) were randomly assigned to intervention or control conditions, and 401 (95%) completed five waves of assessment from pre-test to one-year follow-up, the first phase of the study. Ethnic composition was 42.5% African-American and 57.5 % Latino/Hispanic. Of the target children, 51% were male, 40% lived in single-parent households, and 56% of the primary caregivers (usually the mother) had a high school degree or more. 59% percent had family income below \$20,000, and 85% below \$30,000 per year. 62% had five or more people living in the household. 57% had moved at least once in the year prior to the study, although mostly within the same neighborhood.

We were able to locate 357 of the 424 children in the original sample for the second phase of the study (Tolan et al., 2009). Children who had moved from the original communities served by the schools were not pursued due to limited resources and intent to randomize half of the original intervention condition families to multiple family groups of people living in the same geographic area. Four assessments (waves six to nine) were obtained over three years from the beginning of fourth until the end of sixth grade.

At this follow-up, we attempted to recruit all 424 families to test long term effects. Three-hundred twenty-three youth (323, 76.2% of original participants) and at least one parent of 327 youth (77.1% of the original 424 participants) consented and completed assessments for at least one of two annual data collections (grade 11 and grade 12), yielding a sample of 334 with data from at least child or parent (77.8% of the original sample). Among this sample, archival data from the Chicago Public Schools were available for 216 youth (50.9% of the original 424); those who attended Chicago Public high schools. Costs and consent complexities (e.g. engaging over 120 other schools) prohibited pursuing school records for those who had left the system. The sample for whom we were able to verify Chicago Public School records, overlapped substantially with the interview sample, but included 41 of the original sample that did not participate in data provision for waves 10 or 11. This yielded a sample of 375 with data to test long term effects (88.4% of the original 424 participants). A CONSORT chart of flow of sample over the trial and for the analyses is presented in Figure 1.

Table 1 reports the demographic characteristics of those who were interviewed and those for which school records were obtained. Comparisons of these two sample groups, and to those for whom no follow-up data were obtainable on the variables in Table 1, revealed only a single significant difference. The original sample had a slightly higher proportion of African-American participants than the follow-up sample (45.8% vs. 42.5%, $\chi^2(1, N= 424) = 7.25, p < .01$). No other comparisons were at or near a significant level.

Measures

Outcome variables

Academic attainment: Academic attainment was estimated by two indicators because a portion of students would not have graduated by the time of the final measurement point and often, for this school system, records often lag or are not complete. Therefore, we relied on a second index of attainment developed by the Chicago Public Schools that rates 9th grade students in regard to being *On Track for Graduation* based on whether or not they had completed required courses up to that point and whether or not they had failed any course (categorical yes or no score). Due to student mobility and other limitations of school attendance and “dropout” measures the Chicago Public Schools relies more on this indicator as a sensitive and valid predictor of graduation than other more typical markers. *High School Graduation* was determined based on a combination of archival data from Chicago Public Schools and self-report data from students and parents. Students with any of the following indicators were coded as graduating: 1) CPS code for graduation, 2) student/parent report of graduation, or 3) student report of attending college. In the absence of any indicator of graduation, students with either of the following indicators were coded as not graduating: 1) CPS code for school dropout or 2) student/parent report of not attending high school and not yet graduating. Students without a positive indication of graduation or dropout in the archival data were coded as missing for this variable. While the timing of the assessments means that some youth would not be eligible for graduation by the last data point, this likelihood did not differ by condition.

Serious Misconduct and Violence were measured from data files provided by the Chicago Public Schools Bureau of Safety and Security (BSS) was collected for all participants for the high school years (Fok, Allen, Henry, & The People Awakening Team, 2011; Goldston et al., 2008). The data contains information on the number and type of minor to major disciplinary incidents for individual students during each school year. We extracted from these records tallies of serious misconduct (equivalent to serious misdemeanors/felonies) and a differentiated subgroup of violent offenses (simple and aggravated battery, simple and aggravated assault, fighting) for each participant.

Delinquency and Self-Reported Violence were measured by youth responses to the Self-Report of Delinquency (SRD; Elliott, Huizinga, & Ageton, 1985) which assesses frequency of 44 criminal acts, varying from misdemeanors to most serious felonies. Scores were recorded as frequency (over past year) weighted by seriousness (five levels) across all items. Then scores were then sorted into five ranks (as suggested by Elliot, Huizinga, & Ageton, 2003). In a validity check with an adolescent sample from the same neighborhoods as this study’s sample (the Chicago Youth Development Study; Tolan, Gorman-Smith, & Henry, 2003), this score correlated positively and significantly with concurrent mother’s reports of adolescent delinquent involvement ($r = .38, p < .01$) and with official police records of arrests ($r = .19, p < .01$).

Substance Use: Tobacco, alcohol, and marijuana use were each assessed using youth self-report on items from the Monitoring the Future Scale (MTF; Johnston, O’Malley, & Bachman, 1999). Due to low frequency scores and highly skewed results, scores were

recorded as any vs none. It should be noted this does not reflect a low prevalence rate (see Table 2) but limited variation and distributional properties among those reporting use that undercut the utility of more than a any/none scoring. While “ever used”, 30 day, and past year responses were recorded, the patterns did not vary substantially for the other two probes from “ever” and revealed that differentiating beyond any use or not would be more informative. We recorded whether or not a participant reported any use for each substance type.

Sexual risk: Items adapted from the National Longitudinal Study of Adolescent Health (AddHealth; Harris, 2013) were used to assess sexual risk. These items assessed sex without a condom, and sex with multiple partners. A majority of respondents reported they were sexually active (54%). Due to distribution of scores, these items were combined into a single binary variable assessing any high-risk sex (1) vs. not sexually active or low risk sex only (0).

Mediators—*Parental Involvement in Education* was measured with the parent form of the Fast Track Parent Involvement Scales (Conduct Problems Prevention Research Group, 1999). Items refer to endorsement of the importance of education, quality of relationship with the teacher and school and parental contact with teacher and school. Confirmatory factor analyses showed that the three subscales (parent endorsement of school, $\alpha = .90$, parent involvement, $\alpha = .68$, and quality of relationship with the teacher, $\alpha = .91$) fit a higher-order factor, which was used here ($\alpha = .86$). Higher scores on the composite indicates greater parental involvement in school.

Child Reading Ability was measured by administering the child the Woodcock Diagnostic Reading Battery (Woodcock, 1997). This is a widely used and well-established comprehensive measure of important dimensions of reading achievement and closely related abilities. Four subscale sections were administered: (a) letter-word identification, (b) word attack, (c) passage comprehension, and (d) incomplete words. The subscales from these sections were combined for a total reading score in a manner consistent with the published instructions and supported by our confirmatory factor analysis ($\alpha = .92$ for reading composite).

Demographic and Control Variables: Gender and child ethnicity (African-American or Latino/other), family income and mobility, and assignment to booster (yes, no) were recorded.

Data Analysis

Descriptive statistics were calculated using SPSS. Mediation analyses were conducted using Mplus (Muthén & Muthén, 1998–2012) using restricted maximum likelihood estimates. Intent-to-treat analyses (ITT; White & Labouvie, 1989) were applied based on random assignment at first grade to control or intervention. Generalizations of the linear model were fit as appropriate for the distributions of the outcome variables: mixed effects linear models for outcomes on which there were numeric measures and multiple waves, binary logistic regression for school withdrawal and on-track for graduation. Hypotheses were tested using

Mplus version 8.0 (Mu thén & Muthén, 1998–2012) in which initial condition effects on long term outcomes were modeled as mediated through slope of *Parental Involvement in Education* and *Child Reading Capability* rendered in the initial SAFE analyses (Tolan, et al., 2004). Figure 2 illustrates the structure of these models. In addition to the outcome, condition, and mediator slope, each model included terms for the intercept of the mediator, gender, ethnicity, booster assignment, family mobility, and family income. These models included the direct effect of the intervention condition and the mediated effect of the intervention.

Results

Table 2 reports the descriptive statistics for the outcomes analyzed in this report. Results of the outcome analyses are reported in Table 3. As can be seen there, none of the long term effects of the intervention from first grade were found to be statistically significant, either as total effects (i.e., ignoring effects of the mediators; Tx-DV Total column) or as direct effects (i.e., including effects of the mediators; Tx-Dx Direct Column). One mediated effect was significant; risky sexual practices. It appears that the early intervention effects on parental involvement mediated later lower rates for those in the intervention condition. A similar trend was found for alcohol use and school recorded violence, but at levels only approaching significance ($p = .08$, $p = .11$ respectively). In addition, the relation of this intervention effect to *On Track for Graduation* approaches a significant level ($p = .11$) but not favoring the intervention sample.

Discussion

The purpose of this study was to test the long-term effects of a prevention effort supporting family and child education to help improve success of transition into academic elementary school and to help families manage challenges faced when raising children in some of the most impoverished and violence burdened communities of our country. The intervention was intended to provide support, skills, and practice opportunities to enable these families to be engaged with their child's education and successful development, promoting school achievement and attainment while reducing risk for violence, substance use, and risky sexual practices. Initial findings suggested the intervention protected parental interest and engagement in education against the "as usual" quick diminishment and also helped student progress in reading at a rate comparable to national averages while their classmates fell quickly behind. The follow-up carried out 10–11 years after this intervention, when the children were near or at expectable high school graduation age, suggests that benefits were limited to sexual risk, and that this was through the intervention impact on early parental involvement in education. There are hints of potentially similar mediated effect on violence and alcohol use albeit not at a statistically significant level. At the same time there is no evidence of effects on graduation rate and a concerning potential relation of lower likelihood of being on track for graduation for intervention students. These overall findings do not suggest the intervention was accomplishing the intended goals long term. Most basically, it seems to be a mixed set of results that can inform revisions and perhaps exploration of subgroups or other specific patterns that can inform subsequent prevention efforts and understanding of risk and protection in very high risk communities.

The findings, while disappointing, add to the limited scientific research on long term effects of prevention and underline the need to consider such effects as potentially varying by intervention, populations, and timing of follow-up. These results differ from those found for family-focused interventions applied elsewhere and for those focused on similar communities but emphasizing child behavior (e.g. Good Behavior Game, Bradshaw et al., 2009), those emphasizing selection based on parental or child risk (e.g., Fast Track, Conduct Disorder Prevention Research Group, 2013; Nurse Home Visiting Program, Olds et al., 2010) and those providing more extensive and multicomponent efforts (e.g. Belfield et al., 2006; Campbell et al., 2002; Reynolds et al., 2001), including those beginning intervention in early childhood- prior to school entry. It may be more complex and lasting intervention is necessary for long term impact. One consistency across this and other studies is that relying on a family focused component may be important for sustained effects (Reynolds et al., 2001).

This study was marked by limitations that affect confidence about the results and implications to be drawn about variations from and consistency with similar studies. We did not have statistical power for probing of mediation of risk groups within the sample nor to address possible variation in effects from booster assignment. Both could sharpen clarity about the mediation attributable to the initial intervention. Also, not all of participants had reached the end of plausible period to complete high school nor could we obtain records of all, limiting the robustness of the estimates on academic attainment. However, even with these limitations this is a relatively large sample, with successful randomization, long-term follow-up and no indications of substantial bias affecting results.

One implication of the limited lasting impact is that it may be that a family resilience intervention of limited scope and duration is not able to protect against the pervasive and ongoing challenges to healthy development that are faced by children and family in inner-city neighborhoods. This intervention targeted communities that are among the most beleaguered in regard to economic and social resources and in terms of rates of social problems such as violence, early pregnancy, and school drop-out. The developmental ecology is one of fewer resources, less power to affect circumstances, and more challenges that are less predictable and controllable than occurs in almost all other communities of this nation (Tolan, et al., 2007).

The mediation related to reduced prevalence of risky sexual practices and the patterns of potential difference found for alcohol use and violence (by one indicator) however, may indicate that elaboration and refinement of the approach could enable meaningful preventive benefit for important outcomes. These are important threats to health that are particularly prevalent among inner-city populations. Mediation was through parental involvement in school, suggesting that for this population providing support for parental involvement may be a valuable target, even if not a sufficient one for clearer and more substantial long term benefits. The results may indicate value of including such explicit focus through supportive family groups in elaboration of preschool engagement or through longer term intervention early in development. For example, perhaps earlier, more, or more extensive effort to strengthen social support and practice of effective parenting would enable more lasting effects from the initial intervention benefits.

It may be that promoting resilience is too limited a prevention strategy for those facing extensive economic and related social disparities and impediments. Additional attention to the historical and political bases for differences in developmental needs, challenges, and impact on trajectories may be needed for effective family support (Tolan, Murry, Diaz & Seidl, 2017). Justice-oriented thinking could lead to dismissing an effort that does not address directly and affect the political and social inequities that are the basis for this exceptional risk for children and families. However, studies suggest considerable capability and prevalence of positive development of youth and families even when facing pernicious ongoing threats to wellbeing and safety (Gaylord-Hardin, Barbarin, Tolan, & Murry, 2018). Fashioning healthy development supporting interventions could facilitate attention to political and social bases for the inequities as well as be a basis for direct attention and incorporation in the approach to aiding families.

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References

- Achenbach T (1991). Integrative Guide to the 1991 CBCL/4–18, YSR, and TRF Profiles. (University of Vermont, Burlington, VT).
- Adler NE, & Newman K (2002). At the intersection of health, health care and policy. *Health Affairs*, 21(2), 60–76. doi:10.1377/hlthaff.21.2.60 [PubMed: 11900187]
- Ardelt M & Eccles JS (2001). Effects of mothers' parental efficacy beliefs and promotive parenting strategies on inner-city youth. *Journal of Family Issues*, 22, 944–972.
- Bearman PS, Jones J, & Udry R (1997). The National Longitudinal Study of Adolescent Health, <http://www.cpc.unc.edu/projects/addhealth/documentation> December 15, 2009.
- Belfield CR, Nores M, Barnett S, & Schweinhart L (2006). The High/Scope Perry Preschool Program: Cost-benefit analysis using data from the age-40 followup." *Journal of Human resources*, 40(1): 162–90
- Campbell FA, Ramey CT, Pungello E, Sparling J, & Miller-Johnson S (2002). Early childhood education: Young adult outcomes from the Abecedarian Project. *Applied Developmental Science*, 6(1): 42–57.
- Castellanos-Ryan N, Seguin JR, Vitaro F, Parent S & Tremblay RE (2013). Impact of a 2-year multimodal intervention for disruptive 6-year-olds on substance use in adolescence: randomized controlled trial. *The British Journal of Psychiatry*, 203, 1–8. doi:10.1192/bjp.bp.112.123182. [PubMed: 23818530]
- Conger RD, Conger KJ, & Martin MJ (2010). Socioeconomic Status, Family Processes, and Individual Development. *Journal of Marriage and the Family*, 72(3), 685–704. 10.1111/j.1741-3737.2010.00725.x [PubMed: 20676350]
- Desimone L (1999). Linking parent involvement with student achievement: Do race and income matter? *Journal of Educational Research*, 93, 11–30.
- Elliott D, Huizinga D, & Ageton S. (1985). *Explaining delinquency and drug use*. Beverly Hills, CA:, Sage
- Conduct Problems Prevention Research Group (2011). The effects of the fast track preventive intervention on the development of conduct disorder across childhood. *Child Development*, 82(1), 331–345. doi:10.1111/j.1467-8624.2010.01558.x [PubMed: 21291445]
- Gaylord-Harden NK, Barbarin O, Tolan PH, & Murray VM (2018). Understanding development of African American boys and young men: Moving from risks to positive youth development. *American Psychologist*, 73, 753–767. 10.1037/amp0000300 [PubMed: 30188164]

- Gorman-Smith D, Tolan PH, & Henry D (2005). Promoting resilience in the inner city: Families as a venue for protection, support, and opportunity In Peters RD, Leadbeater B, & McMahon RJ (Eds.), *Resilience in children, families, and communities: Linking context to practice and policy* (pp. 137–155). New York, NY: Kluwer Academic/Plenum Publishers. doi:10.1007/0-387-238247_9
- Harris KM (2013). The Add Health Study: Design and Accomplishments. Carolina Population Center, University of North Carolina at Chapel Hill Available at <http://www.cpc.unc.edu/projects/addhealth/data/guides/DesignPaperWIIV.pdf>
- Hollis S, & Campbell F (1999). What is meant by intention to treat analysis? Survey of published randomized controlled trials. *British Journal of Medicine*, 319, 670–679.
- Illinois State Board of Education. Student Assessment Division, Illinois State Board of Education, Springfield, IL, 2002.
- Karriker-Jaffe KJ, Foshee, Ennett ST, & Suchindran C (2008). Development of aggression during adolescence: Sex differences in trajectories of physical and social aggression of youth in rural areas. *Journal of Abnormal Child Psychology*, 36, 1227–1234. [PubMed: 18521738]
- Kellam SG, Brown CH, Poduska JM, Ialongo NS, Wang W, Toyinbo P, et al. (2008). Effects of a universal classroom behavior management program in first and second grades on young adult behavioral, psychiatric, and social outcomes. *Drug and Alcohol Dependence*, 95, 1–28. [PubMed: 18242006]
- Johnston LD, O'Malley P, & Bachman JN (1999). *Monitoring the Future Scales*. Washington, DC: US Department of Health and Human Services, U.S. Government Printing Office, Washington, DC, 1999.
- Luthar SS, & D'Avanzo K (1999). Contextual factors in substance use: a study of suburban and inner-city adolescents. *Development and Psychopathology*, 11(4), 845–867. [PubMed: 10624729]
- Masten AS, & Coatsworth JD (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, 53(2), 205–220. 10.1037/0003-066X.53.2.205 [PubMed: 9491748]
- Muthén LK & Muthén BO (2007). *Mplus user's guide*. 5th edition. Los Angeles, CA: Muthén & Muthén.
- O'Connell ME, Boat T, & Warner KE (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. Washington, DC: National Academies Press (US) ISBN-13: 978-0-309-12674-8.
- Olds DL, Kitzman HJ, Cole RE, Hanks CA, Arcoletto KJ, ... Stevenson AJ (2010). Enduring effects of prenatal and infancy home visiting by nurses on maternal life course and government spending: Follow-up of a randomized trial among children at age 12 years. *Archives of Pediatrics & Adolescent Medicine*, 164(5), 419–424. [PubMed: 20439792]
- Pasalich DS, Witkiewitz K, McMahon RJ, & The Conduct Problems Prevention Research Group. (2016). Indirect Effects of the Fast Track Intervention on Conduct Disorder Symptoms and Callous-Unemotional Traits: Distinct Pathways Involving Discipline and Warmth. *Journal of Abnormal Child Psychology*, 44(3), 587–597. [PubMed: 26242993]
- Petras H, Kellam SG, Brown CH, Muthen BO, Ialongo NS, & Poduska JM (2008). Developmental epidemiological courses leading to antisocial personality disorder and violent and criminal behavior: Effects by young adulthood of a universal preventive intervention in first- and second-grade. *Drug and Alcohol Dependence*. 95(Sup 1), 45–59. [PubMed: 18242881]
- Poduska JM, Kellam SG, Wang W, Brown CH, Ialongo NS, & Toyinbo P (2008). Impact of the Good Behavior Game, a universal classroom-based behavior intervention, on young adult service use for problems with emotions, behavior, or drugs or alcohol. *Drug and Alcohol Dependence*, 95(Suppl. 1), 29–44.
- Reynolds AJ, Temple JA, Robertson DL, & Mann EA (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: a 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association*, 285(18), 2339–2346. [PubMed: 11343481]
- Sandler IN, Schoenfelder EN, Wolchik SA, & MacKinnon DP (2011). Long term impact of prevention programs to promote effective parenting: Lasting effects but uncertain processes. *Annual Review of Psychology*, 62, 299–329.

- Swanson C (2009). *Closing the Gap: Cities in Crisis, Educational and Economic Conditions in America's Largest Cities*. Cambridge, MA: Editorial Projects in Education, Inc.
- Tolan PH (2002). Family-focused prevention research: 'tough but tender' In Liddle HA, Santisteban DA, Levant RF & Bray JH (Eds.), *Family psychology: Science-based interventions* (pp. 197–213). Washington, DC: American Psychological Association. doi:10.1037/10438-010
- Tolan PH, & Gorman-Smith D (1997). Families and the development of urban children In Herbert J, Wallberg OR, & Weissberg RP (Eds.), *Children and youth: Interdisciplinary perspectives* (pp. 67–91). Thousand Oaks, CA: Sage Publications, Inc.
- Tolan PH, Gorman-Smith D, & Henry D (2004). Supporting families in a high-risk setting: Proximal effects of the SAFEChildren preventive intervention. *Journal of Consulting and Clinical Psychology, 72*(5), 855–869. doi:10.1037/0022-006X.72.5.855 [PubMed: 15482043]
- Tolan PH, Gorman-Smith D, Henry D, & Schoeny M (2009). The benefits of booster interventions: Evidence from a family-focused prevention program. *Prevention Science, 10*(4), 287–297. doi: 10.1007/s11121-009-0139-8 [PubMed: 19513845]
- Tolan PH, Murry VM, Diaz A & Seidel R (2017). Identifying and implementing opportunities to realize health equity through a life span lens and legal policy research In Bogard K, Murry VM & Alexander C (Eds.), *Perspectives on health equity and social determinants of health*. (pp 25–40). Washington, DC: National Academy of Medicine.
- Tolan PH, Sherrod LR, Gorman-Smith D, & Henry DB (2004). Building protection, support and opportunity for inner-city families In Solarz AL (Ed.), *Investing in children, youth, families, and communities: Strengths-based research and policy* (pp. 193–211). Washington, DC: American Psychological Association.

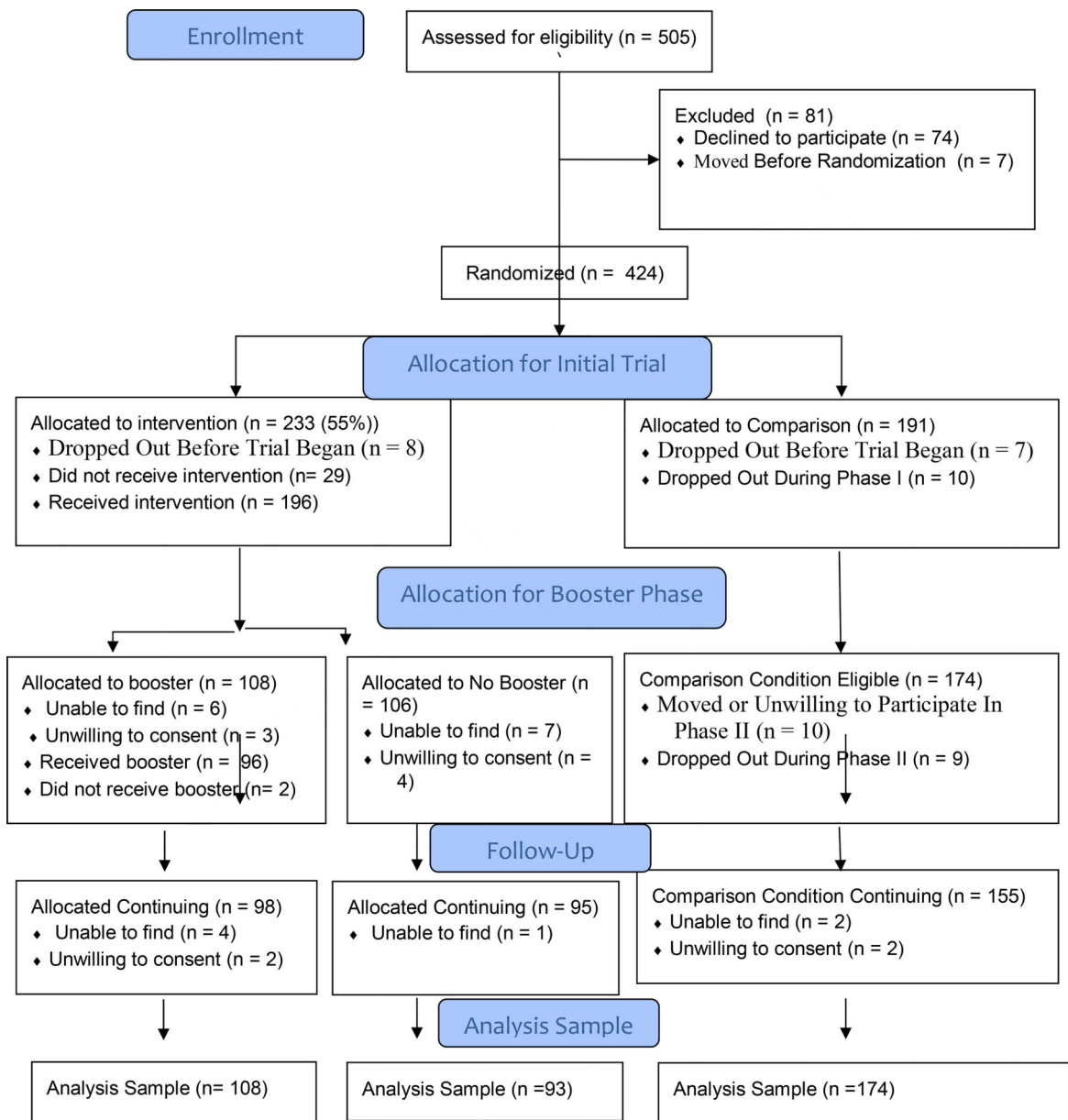


Figure 1:
SAFEChildren RCT CONSORT Flow Diagram

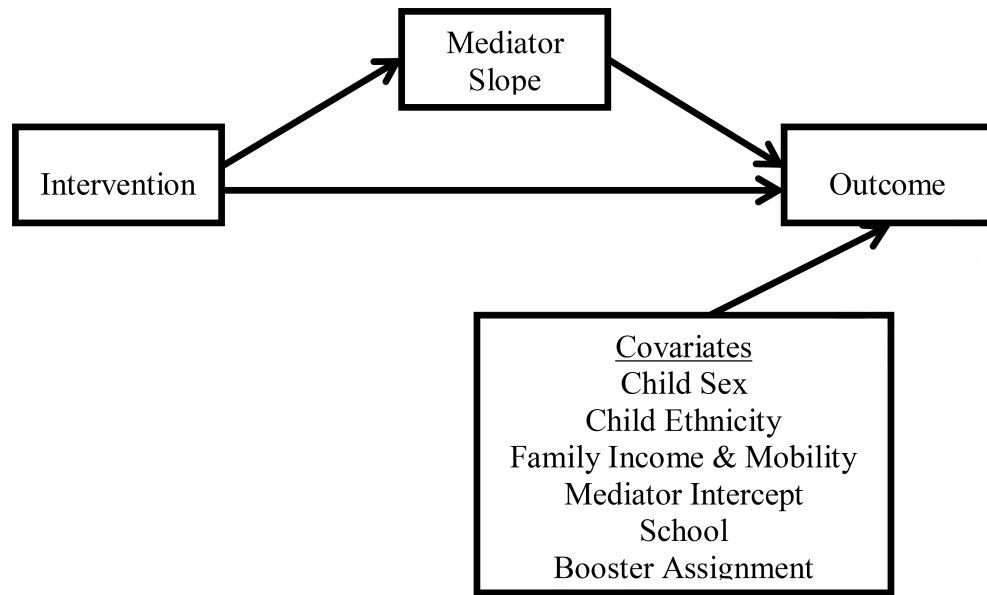


Figure 2. Structure of Mediation Models. Note: For binary outcomes, only occurrence was modeled as the outcome variable.

Table 1

Demographics of Long Term Follow Up Sample

Variable	Level	Interview Sample (n=334)		Archival Sample (n=273)		Full Sample (N=424)	
		<i>n</i>	%	<i>N</i>	%	<i>n</i>	%
Gender (Female)		177	53.0	121	54.8	217	51.2
Ethnicity							
	Latino/Hispanic	181	54.2	121	54.8	244	57.5
	African-American	153	45.8	100	45.2	180	42.5
Single Parent ^a		87	26.0	60	22.0		
Intervention Condition							
	Control	158	47.3	131	48.0	199	46.9
	Initial Only	80	24.0	66	24.2	111	26.2
	Initial + Booster	96	28.7	76	27.8	114	26.9
Family Income (Wave 2)							
	Less than \$5000	51	15.9	33	12.1	62	14.6
	\$5000–9999	43	13.4	37	13.5	59	13.9
	\$10000–19999	93	29.1	80	29.3	115	27.1
	\$20000–29999	77	24.1	60	22.0	97	22.9
	\$30000–49999	34	10.6	24	8.8	42	9.9
	More than \$50000	8	2.5	7	2.6	9	2.1
	missing	14	4.4	32	11.7	40	9.4

^aEstimated using a growth mixture model of marriage and partner status for the duration of the study.

Table 2:

Descriptive Statistics for Long Term Outcomes

	Mean or %	SD
School Record Comparisons (<i>n</i> = 273)		
Serious Misconduct (Number)	0.26	0.88
Violence (Number)	0.22	0.72
On Track for Graduation (%)	57.5%	
Interviews/Survey Comparisons (<i>n</i> = 334)		
Graduation ^a	74.6%	
Self-Report of Delinquency (Scale 0–5)	1.41	1.35
Self-Report Violence (Number)	2.73	10.50
Alcohol Use (% ever)	70.9%	
Tobacco Use (% ever)	43.6%	
Marijuana Use (% ever)	39.6%	
Sexual Risk (% yes)	54.1%	

^a
n=382

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Table 3.

Lons Term Effects with Mediation Tests

Outcome/Mediator	Tx-Med		Med-DV		Tx-DV Direct		Tx-DV Indirect		Tx-DV Total	
	b (se)	p	b (se)	p	b (se)	p	b (se)	p	b (se)	p
On-track for graduation										
Parent Involvement	0.20 (0.03)	<.001	0.00 (0.50)	.99	-0.46 (0.28)	.11	0.00 (0.10)	.99	-0.45 (0.27)	.09
Reading	0.26 (0.03)	<.001	0.52 (0.63)	.41	-0.60 (0.32)	.06	0.14 (0.16)	.40	-0.47 (0.26)	.07
Graduation										
Parent Involvement	0.20 (0.03)	<.001	-0.01 (0.48)	.98	-0.31 (0.27)	.25	0.00 (0.09)	.98	-0.31 (0.26)	.23
Reading	0.24 (0.02)	<.001	0.82 (0.60)	.18	-0.36 (0.30)	.24	0.20 (0.15)	.18	-0.16 (0.27)	.54
School Record Serious Misconduct										
Parent Involvement	0.17 (0.03)	<.001	0.17 (0.68)	.81	-0.33 (0.34)	.33	0.03 (0.12)	.81	-0.30 (0.30)	.32
Reading	0.26 (0.03)	<.001	-0.27 (0.75)	.72	-0.23 (0.39)	.55	-0.07 (0.19)	.72	-0.30 (0.31)	.33
School Record Violence										
Parent Involvement	0.18 (0.03)	<.001	0.24 (0.68)	.73	-0.58 (0.36)	.11	0.04 (0.12)	.73	-0.53 (0.33)	.10
Reading	0.26 (0.03)	<.001	-0.20 (0.79)	.80	-0.56 (0.42)	.19	-0.05 (0.20)	.80	-0.61 (0.33)	.07
Archival Serious Misconduct or Violence										
Parent Involvement	0.17 (0.03)	<.001	0.13 (0.65)	.85	-0.39 (0.32)	.23	0.02 (0.11)	.85	-0.37 (0.29)	.20
Reading	0.26 (0.03)	<.001	-0.29 (0.71)	.69	-0.32 (0.38)	.40	-0.07 (0.18)	.66	-0.39 (0.30)	.19
Self-Report Delinquency Level										
Parent Involvement	0.21 (0.03)	<.001	-0.24 (0.37)	.52	-0.02 (0.23)	.94	-0.05 (0.29)	.86	-0.07 (0.08)	.38
Reading	0.22 (0.02)	<.001	-0.33 (0.46)	.48	-0.03 (0.23)	.90	-0.07 (0.98)	.94	-0.10 (0.10)	.32
Self-report of Violence										
Parent Involvement	0.21 (0.03)	<.001	-0.08 (0.63)	.90	0.00 (0.33)	.99	-0.02 (0.13)	.89	-0.02 (0.30)	.96
Reading	0.22 (0.02)	<.001	-0.80 (0.74)	.28	0.08 (0.35)	.83	-0.18 (0.17)	.29	-0.10 (0.30)	.73
Tobacco Ever										
Parent Involvement	0.21 (0.03)	<.001	0.03 (0.46)	.94	-0.12 (0.26)	.65	0.01 (0.10)	.94	-0.11 (0.24)	.65
Reading	0.22 (0.02)	<.001	-0.83 (0.59)	.16	0.16 (0.27)	.56	-0.18 (0.13)	.17	-0.03 (0.24)	.91
Alcohol Ever										

Outcome/Mediator	Tx-Med		Med-DV		Tx-DV Direct		Tx-DV Indirect		Tx-DV Total	
	b (se)	p	b (se)	p	b (se)	p	b (se)	p	b (se)	p
Parent Involvement	0.21 (0.03)	<.001	-0.88 (0.47)	.06	0.24 (0.29)	.42	-0.18 (0.10)	.08	0.06 (0.28)	.84
Reading	0.22 (0.02)	<.001	0.72 (0.68)	.29	0.03 (0.33)	.92	0.16 (0.15)	.29	0.19 (0.28)	.49
Marijuana Ever										
Parent Involvement	0.21 (0.03)	<.001	-0.23 (0.43)	.59	-0.09 (0.25)	.71	-0.05 (0.09)	.59	-0.14 (0.24)	.55
Reading	0.22 (0.02)	<.001	0.24 (0.55)	.67	-0.11 (0.27)	.69	0.05 (0.12)	.67	-0.05 (0.24)	.82
Sex Risk										
Parent Involvement	0.21 (0.03)	<.001	-0.94 (0.43)	.03	0.32 (0.27)	.24	-0.20 (0.10)	.04	0.12 (0.25)	.63
Reading	0.22 (0.02)	<.001	0.04 (0.54)	.94	0.09 (0.27)	.74	0.01 (0.12)	.94	0.10 (0.24)	.68

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