Parent Psychological Distress: A Moderator of Behavioral Health Intervention Outcomes among Justice-Involved Adolescents

Mei Yi Ng,
University of California, San Francisco and Zuckerberg San Francisco General Hospital and Florida International University

Katharine Galbraith,
University of California, San Francisco and Zuckerberg San Francisco General Hospital and University of Southern California

Marina Tolou-Shams,
University of California, San Francisco and Zuckerberg San Francisco General Hospital

Larry K. Brown
Alpert Medical School of Brown University and Rhode Island Hospital

Abstract

We examined whether pre-existing parent psychological distress moderated juvenile offenders' substance use, sexual risk, and mental health outcomes in a randomized trial. Forty-seven parent–adolescent dyads received either Family-based Affect Management Intervention (FAMI) for adolescent substance use and HIV prevention or adolescent-only Health Promotion Intervention (HPI). Parents' self-reported distress at baseline significantly moderated adolescents' self-reported marijuana use and alcohol use but not other outcomes at 3 months postintervention, producing crossover interactions. FAMI outperformed HPI when parents reported high-level distress, whereas HPI outperformed FAMI when parents reported low-level distress. This finding that the relative efficacy of interventions depends on the severity of parent psychological distress could inform efforts to match substance-using, justice-involved adolescents with the intervention most likely to benefit them.

There is substantial evidence for the association between parent psychological distress and adolescent substance use, risky sexual behavior (RSB), delinquency, and mental health. Parental psychopathology is associated with adolescent substance use (Ali, Dean, & Hedden, 2016; Herman-Stahl et al., 2008), RSB (Hadley et al., 2011; Nijjar, Ellenbogen, & Hodgins, 2014) and mood disorders (Nijjar et al., 2014). Furthermore, parents' own substance use—likely correlated with overall parent distress—is associated with adolescent substance use and depression (Ohannessian, 2012). Some of these associations are mediated by less parental monitoring (Hadley et al., 2011) and poor adolescent–parent communication (Ohannessian, 2012). Research with justice-involved youth—an adolescent population with elevated substance use, RSB, and mental health problems—has documented a negative

Requests for reprints should be sent to Mei Yi Ng, Center for Children and Families, Florida International University, 11200 S.W. 8th St., AHC 4, Rm 457, Miami, FL. meiyi.ng@fiu.edu.

relationship between severity of parental distress and quality of family functioning and parental monitoring (Tolou-Shams et al., 2018).

Family-based interventions are the empirical gold standard for adolescent substance use and delinquency (Hogue, Henderson, Ozechowski, & Robbins, 2014; McCart & Sheidow, 2016). Evidence suggests that family-based interventions are more effective than adolescent-only interventions in reducing delinquency and substance use among youth in general (Hogue et al., 2014; Tanner-Smith, Wilson, & Lipsey, 2013); however, a review indicated that both types of interventions have similarly modest effects with juvenile offenders (Tripodi & Bender, 2011). Family-based and adolescent-only interventions have also been shown to prevent or reduce adolescent RSB (Brown et al., 2014; Hale, Fitzgerald-Yau, & Viner, 2014). Moreover, adolescent-only health promotion has been shown to reduce RSB, including substance use during sex, among justice-involved youth (Tolou-Shams et al., 2011). Family-based interventions focus on intrafamilial relationships and their influence on peer, school, and justice systems that contribute to substance use and RSB; they foster effective communication, conflict-resolution, and parental monitoring to reduce problematic adolescent behavior (Hogue et al., 2014; McCart & Sheidow, 2016). In contrast, adolescent-only interventions, target the *youth's* individual attitudes and behaviors contributing to substance use and RSB through psychoeducation and skills training for making healthy decisions that directly applies to the youth rather than to their family system (Hale et al., 2014).

There is a dearth of research on how parent distress may impact intervention effects on substance use, RSB, and delinquency, especially among justice-involved adolescents. Research has linked the effects of youth mental health interventions to parent distress, but studies are focused on youth with anxiety, depression, or disruptive behavior—all in nonjustice contexts. Additionally, findings are mixed as to how family- and youth-focused intervention effects may depend on the severity of parent distress. Bodden et al. (2008) reported that youth whose parents had anxiety disorders were less likely to experience normal-range symptoms after receiving family-focused cognitive behavioral therapy (CBT) versus child-focused CBT; the reverse occurred among youth whose parents had no anxiety disorders. However, youth whose parents had anxiety disorders were more likely to retain their diagnosis regardless of treatment. Conversely, Cobham, Dadds, and Spence (1998) demonstrated that anxious youth with high-anxious parents had higher remission rates after CBT plus parent anxiety management than after CBT only, and those with low-anxious parents had comparable remission rates across treatments. Dietz et al. (2014) reported similar findings with depressed adolescents: higher maternal depressive symptomatology predicted lack of improvement in problem-solving, a skill associated with remission, in youth-focused CBT but not in systemic behavior family therapy. Finally, maternal psychopathology was associated with reduced effects of adolescent-focused CBT for depression (Garber et al., 2009) and parent training for disruptive behavior (Reyno & McGrath, 2006), respectively. These findings support the link between parent distress and attenuated youth response.

We sought to fill a gap in the literature by examining how pre-existing parent distress might relate to justice-involved adolescents' response on multiple behavioral health outcomes

(substance use, RSB, mental health) in a pilot randomized controlled trial (RCT). In this RCT, family-based intervention for adolescent substance use and HIV prevention led to greater reductions in marijuana use and unprotected sex compared to adolescent-only intervention (Tolou-Shams et al., 2017). No differences in alcohol use were found and mental health problems were not included in primary outcome analyses. In this study, we considered three hypotheses: (1) higher-level parent distress may predict worse outcomes for both interventions because mental health issues may limit parents' ability to support their children's intervention goals; (2) higher level parent distress may predict worse outcomes for family-based intervention versus adolescent-only intervention because engagement may be more challenging for parents experiencing severe mental health symptoms, and (3) higher-level parent distress may predict either better or equivalent outcomes for family-based intervention versus adolescent-only intervention because family-based intervention may help parents with more severe psychopathology to build skills to support their children's intervention goals. Our findings may indicate whether family-based or adolescent-only interventions may be more helpful to justice-involved adolescents, depending on the level of parent distress, thereby improving services for this underserved adolescent population.

METHOD

Participants

Parent–adolescent dyads were recruited from a juvenile drug court (JDC) in the northeastern United States—a diversionary program for first-time or repeat nonviolent offenders. All adolescents reported active substance use but were not necessarily charged with drug-related crimes. The case manager or presiding judge referred families to research staff who obtained informed consent and assent. Study methods were approved by the Institutional Review Board of the primary investigator (M. T.-S.). Of 283 referred families, 233 were eligible, 60 consented and were randomized, and the 47 who received any intervention were included in this study. Table 1 displays participant characteristics (see Tolou-Shams et al., 2017 for CONSORT flowchart and details of inclusion and exclusion criteria and demographics).

Interventions

After baseline assessment, dyads were randomly assigned to Family-based Affect Management Intervention (FAMI; $n = 25$) or adolescent-only Health Promotion Intervention (HPI; $n = 22$). FAMI was designed to prevent substance use and HIV through improving adolescents' and parents' emotion regulation strategies, increasing adolescents' motivation to reduce substance use and RSB, and building parents' skills and motivation to support adolescents' behavior change over four two-hour sessions (19 per week) plus one "booster" two-hour session in the eighth week. Matched on time and appeal to FAMI, HPI provided adolescents with psychoeducation on substance use, HIV prevention, and healthrelated behaviors (e.g., nutrition, exercise). A similar number of sessions were attended by FAMI ($M = 4.52$) and HPI ($M = 4.77$) participants (see Tolou-Shams et al., 2017 for details on intervention content, dosage, and fidelity).

Measures

Measures were administered using Audio Computer Assisted Self-Interview (ACASI) at baseline and at 3 months postintervention (i.e., after the booster session, henceforth termed "postintervention"). Participants were informed that a Certificate of Confidentiality was obtained, and JDC staff could not access research-related information.

Parent distress.—Parents completed the Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 1994), a 90-item self-report inventory covering a broad spectrum of psychopathology (e.g., depression, anxiety) for individuals aged 13 years and older. We used the Global Severity Index (GSI), a measure of overall psychological distress computed from all but two suicidal ideation items (these were omitted given lack of clinical resources to address caregiver disclosures of imminent suicide risk). Higher scores reflect greater severity; 0.23, 0.51, and 0.97 indicate mild, moderate, and severe symptomatology, respectively (Tingey, Lambert, Burlingame, & Hansen, 1996).

Adolescent substance use and sexual risk.—Adolescents completed the Adolescent Risk Behavior Assessment (ARBA; Donenberg, Emerson, Bryant, Wilson, & Weber-Shifrin, 2001), designed to assess adolescents' self-reported substance use and sexual behaviors. We used the number of days of marijuana use, number of days of alcohol use, and number of risky sexual acts (i.e., unprotected vaginal or anal sex) during the past 90 days (see Tolou-Shams et al., 2017).

Adolescent mental health.—Adolescents completed the Youth Self-Report (YSR; Achenbach & Rescorla, 2001), a 118-item self-report measure of emotional and behavioral problems for youth (11–18 years). We used age- and gender-normed T-scores from the internalizing problems (e.g., depression, anxiety) and externalizing problems (e.g., rule-breaking, aggression) scales. Higher scores reflect greater severity; cutoffs of 60 and 64 indicate borderline- and clinical-range scores, respectively.

Data Analysis

We modeled each outcome at postintervention, entering intervention condition, baseline parent distress, and their interaction as predictors, and baseline levels of the outcome as covariates. For each YSR outcome, we covaried both baseline internalizing and externalizing problems scores (see Achenbach, Ivanova, Rescorla, Turner, & Althoff, 2016). We modeled the postintervention substance use and RSB outcomes as dichotomous variables (yes vs. no) and as count variables (number of days of substance use, number of risky sexual acts) because we wanted to examine whether parent distress and its interaction with intervention impacted *whether* adolescents engaged in the behavior, and *how much* they did so, respectively. We analyzed the baseline values of those outcomes as counts to maximize comparability between models. We modeled dichotomous outcomes using logistic regression. We found no fit or assumption violations with the Hosmer–Lemeshow goodness-of-fit test and the Box–Tidwell approach to test the linearity of the logit (Hosmer & Lemeshow, 2000). We modeled count outcomes using generalized linear models with negative binomial distribution and log link function. We used linear regression for mental health outcomes because their distributions showed no significant departures from normality.

Significance level was set at α= .05 for each model. Finally, we probed significant interactions using the Johnson–Neyman technique, which identifies the range of parent GSI values for which FAMI and HPI significantly differed on dichotomous or continuous outcomes—"the "region of significance." Three families (two FAMI, one HPI) missed the postintervention assessment and one adolescent did not complete postintervention YSR. We imputed baseline values for missing postintervention outcomes, consistent with primary outcome analyses (Tolou-Shams et al., 2017). YSR analyses excluded data from two adolescents who completed insufficient YSR items at baseline to generate scale scores and RSB analyses excluded data from one adolescent who skipped relevant questions at baseline. These six participants reported significantly fewer baseline days of marijuana use than the remaining participants; they did not differ on other characteristics. Analyses were conducted using SPSS Version 25, with Hayes' (2013) PROCESS macro to identify the region of significance.

RESULTS

Table 1 displays descriptive statistics of parent psychological distress and adolescent outcomes at baseline and postintervention. FAMI participants reported more days of marijuana use at baseline than HPI participants; no other significant differences were found.

Substance Use Outcomes

The intervention × baseline parent distress interaction was significant for whether adolescents used marijuana and alcohol at postintervention. Table 2 displays model parameters and statistics. At low-level parent distress, the odds of using marijuana, and of using alcohol, were higher among FAMI adolescents than among HPI adolescents, whereas at high-level parent distress, the odds of using marijuana, and of using alcohol, were higher among HPI adolescents than among FAMI adolescents. However, the region of significance differed between the two outcomes. The odds of marijuana use were significantly higher among HPI adolescents than FAMI adolescents only when parent GSI score exceeded 0.86 (70.2 percentile of sample); whereas the odds of alcohol use were significantly higher among FAMI adolescents than HPI adolescents only when parent GSI score fell under 0.58 (51.1 percentile of sample). The interaction was also significant for number of days of marijuana use, but not for number of days of alcohol use (see Table 2). Figure 1 illustrates the significant crossover interactions.

Sexual Risk Outcomes

The intervention × baseline parent distress interaction did not significantly predict whether adolescents engaged in risky sexual acts or the number of risky sexual acts at postintervention (see Table 3). However, parent distress was positively associated with the number of risky sexual acts regardless of intervention; it was not associated with whether adolescents engaged in risky sex.

Mental Health Outcomes

The intervention × baseline parent distress interaction was not significant for either adolescent internalizing or externalizing outcomes; parent distress was also not significantly associated with either outcome (see Table 4).

DISCUSSION

In this pilot efficacy trial, parents' pre-existing distress had differential impact across interventions on justice-involved adolescents' marijuana and alcohol use at 3 months postintervention, controlling for adolescents' baseline substance use. When parents experienced greater distress, family affect management intervention outperformed adolescent-only psychoeducation in preventing adolescent marijuana use and reducing days of marijuana use, and did as well as adolescent-only psychoeducation in preventing alcohol use. But when parents experienced less distress, adolescent-only psychoeducation was superior to family intervention in preventing adolescent alcohol use, and had similar effects as family intervention on preventing and reducing days of adolescent marijuana use. Although the interaction was not significant for reducing days of alcohol use, the substance use models mostly support the third hypothesis—distressed parents may benefit more from familybased intervention than from adolescent-only intervention, compared to their less distressed counterparts. On the other hand, the RSB model for reducing number of risky sexual acts supports the first hypothesis—that adolescents with distressed parents engage in more risky sex following both interventions. None of the hypotheses were supported by the mental health models—parent distress had no impact on those outcomes, either alone or in combination with intervention.

Our substance use findings add to a small evidence base suggesting that family-based intervention may be especially beneficial to youth whose parents have mental health concerns. This pattern has emerged with anxious (Cobham et al., 1998) and depressed (Dietz et al., 2014) youth, and is consistent with results from two RCTs of Multidimensional Family Therapy (MDFT), which included many justice-involved adolescents. In both RCTs, adolescents with greater symptom severity and comorbidity displayed greater improvement in substance use after receiving MDFT relative to other adolescent-focused interventions (i.e., individual CBT and enhanced usual services; Henderson, Dakof, Greenbaum, & Liddle, 2010). MDFT also significantly reduced RSB relative to enhanced usual services at one of two study sites, where adolescents had greater number of lifetime arrests, substance dependence, and comorbid psychiatric diagnoses, and higher rates of family substance use and criminality (Rowe et al., 2016). Research suggests that the effects of MDFT on adolescent abstinence from substance use are mediated by improvement in parent monitoring of adolescents' activities and peers (Henderson, Rowe, Dakof, Hawes, & Liddle, 2009). Moreover, parents with clinically elevated psychopathology showed greater improvement on parental monitoring and adolescent–parent sexual communication than parents without elevated psychopathology after receiving family-based HIV prevention compared to adolescent-only intervention (Hadley et al., 2015). Therefore, family-based interventions may offer greater benefit to adolescents whose parents experience greater

mental and behavioral health concerns because they may help parents build monitoring and communication skills needed to support their children's treatment goals.

Identifying parent distress as a moderator of adolescent substance use suggests the possibility of matching interventions to families, yet the lack of moderation of other outcomes require discussion. Mental health was not a primary intervention target, thus effects on those outcomes may have been smaller, and the modest sample size may have constrained power to detect significant effects. In contrast, RSB was a primary intervention target and was significantly predicted by greater parent distress—thus low power is unlikely to explain the absence of moderation. Key differences between our study and the MDFT trial showing moderation of RSB offer possible explanations for our failure to find moderation of RSB. First, our adolescent participants were not detained and engaged in minor (mostly drug-related) forms of delinquency, whereas the MDFT sample included detained youth with more severe delinquency. Second, our interventions lasted only 2 months compared to 4 to 6 months in the MDFT trial (Henderson et al., 2010). Third, as an evidence-based treatment for adolescent substance use (Hogue et al., 2014), MDFT is far more developed and intensive than FAMI and it is tailored to individual families and targets multiple systems beyond the family. Distressed parents in our study who became involved with the legal system related to their youth's own drug involvement might understandably focus on applying their skills to the more pressing issue of youth substance use than RSB during a brief intervention, whereas families with greater psychopathology and substance use in the MDFT trial have more time and guidance to address multiple risk behaviors. A clinical implication of our findings is that adolescents with distressed parents may be better served by a brief intervention that focuses on one or two closely related problems most salient to the family; multiple outcomes might require greater duration and intensity of treatment.

Our study had several limitations. Our small sample of nonviolent offenders constrained power and may not generalize to severe offenders. We were unable to collect information about eligible families who did not consent for participation, which precluded examining differences between families who consented and those who did not. Additionally, the low participation rate of male caregivers precluded comparisons of the impact of fathers versus mothers on intervention response. We did not assess parent-report or objective (e.g., drug screen) outcomes, nor did we examine outcomes beyond 3 months postintervention. Moreover, other parent variables (e.g., substance use, arrest histories), were not assessed— these plausible moderators should be tested in future studies. Importantly, it remains unknown whether changes in parental behaviors, including improvement in parent distress, parental monitoring, adolescent–parent communication, drove the interaction we found. Future research that investigates whether each of these putative mechanisms mediates intervention effects on adolescent outcomes would strengthen support for the hypothesis that family-based interventions help parents build skills for supporting their children's substance use abstinence or reduction. Further research is also needed to better understand why adolescent-focused intervention was more beneficial than family-based intervention in reducing alcohol use when parents had low-level distress. We observed that in FAMI, families focused discussion on youth marijuana use (vs. alcohol use) during parent-adolescent communication role plays, whereas HPI delivered a fixed amount of didactic material about each substance. This plausibly resulted in delivering more alcohol-related

content in HPI than in FAMI, and adolescents with low-distress parents might have been better able to learn and apply this content to abstain from alcohol. This working hypothesis requires testing in future studies.

Our study also had several strengths. We measured a range of behavioral health outcomes and targeted a specific adolescent population with urgent behavioral health needs. Effects of both adolescentand family-based substance use interventions are smaller for juvenile offenders than for nonoffenders (Tripodi & Bender, 2011), likely due to additional challenges (e.g., fewer resources) that can inhibit treatment progress. To our knowledge, this is the only study assessing pre-existing parent distress as a moderator of interventions targeting substance use, sexual risk, and mental health outcomes among justice-involved adolescents. It is also one of the few youth intervention studies demonstrating a crossover interaction. Identifying moderators can inform the creation of screening tools to match adolescents with their optimally effective intervention, which may be enhanced by considering multiple moderators for each adolescent—a current direction in research to personalize mental health interventions (Ng & Weisz, 2016). We hope that our findings will inform clinical applications to improve behavioral health services for justice-involved adolescents.
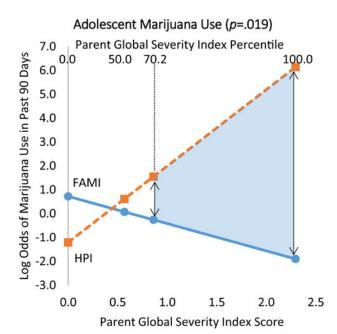
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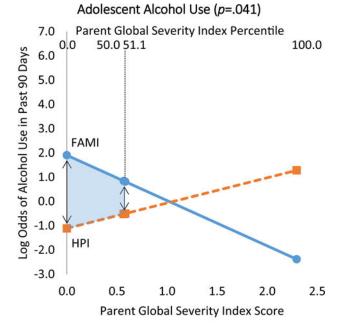
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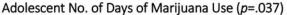
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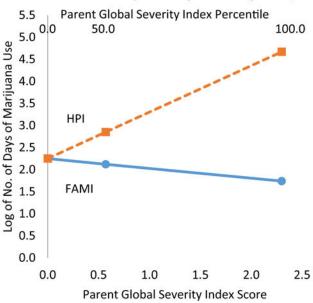
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FIGURE 1.
Interaction between baseline parent distress and intervention for adolescent marijuana use and alcohol use outcomes; shaded areas demarcate the "region of significance," the range of parent Global Severity Index scores and percentiles with a significant between-intervention difference in the odds of adolescent substance use. FAMI, family-based affect management intervention, represented by solid blue lines; HPI, adolescent-only Health Promotion Intervention, represented by dashed orange lines.

TABLE 1

Demographics, Parent Psychological Distress, and Adolescent Outcomes at Baseline and Three Months Postintervention by Intervention ($N = 47$)

Characteristic	Family-based Affect Management Intervention (n = 25) Mean (SD) or N (%)	Health Promotion Intervention (n = 22) Mean (SD) or N (%)	Test Statistic
Adolescent demographics			
Age	16.04 (1.31)	15.36 (1.18)	$t = -1.86$
Male	18 (72.0%)	17 (77.3%)	$\chi^2 = 0.17$
Race			2.35^b
White	15 (68.2%)	11 (61.1%)	
African-American	3 (13.6%)	1 (5.6%)	
Asian	0 (0%)	1 (5.6%)	
Other	4 (18.2%)	5 (27.8%)	
Hispanic	3 (12.5%)	5 (22.7%)	0.84^b
Parent demographics			
Age	42.72 (10.31)	41.09 (7.11)	$t = -0.62$
Male	4 (16.0%)	2 (9.1%)	0.50^b
Highest level of education			1.34^b
Less than high school	5 (21.7%)	3 (13.6%)	
High school graduate/GED	5 (21.7%)	8 (36.4%)	
At least some college	13 (56.5%)	11 (50.5%)	
Parent psychological distress			
Global severity index score	0.57 (0.49)	0.72 (0.51)	$t = 1.02$
Adolescent outcomes			
Past 90-day marijuana use			
Baseline no. of days used	36.64 (40.14)	15.36 (24.79)	$t = -2.21^*$
Postintervention use	14 (56.0%)	14 (63.6%)	$\chi^2 = 0.28$
Postintervention no. of days used	26.24 (37.15)	19.45 (31.90)	$t = -0.67$
Past 90-day alcohol use			
Baseline no. of days used	3.56 (5.54)	3.14 (9.71)	$t = -0.19$
Postintervention use	17 (68.0%)	9 (40.9%)	$\chi^2 = 3.48$
Postintervention no. of days used	3.48 (5.36)	3.00 (6.71)	$t = -0.27$

Characteristic	Family-based Affect Management Intervention (n = 25) Mean (SD) or N (%)	Health Promotion Intervention (n = 22) Mean (SD) or N (%)	Test Statistic
Past 90-day risky sexual acts			
Baseline no. of acts[a]	9.56 (23.77)	6.48 (21.40)	$t = -0.46$
Postintervention engagement	9 (36.0%)	6 (27.3%)	$\chi^2 = 3.48$
Postintervention no. of acts	3.16 (8.13)	7.18 (15.66)	$t = 1.08$
Internalizing problems T-score			
Baseline	48.44 (6.95)	50.50 (9.88)	0.82
Postintervention	44.92 (8.92)	48.55 (11.30)	1.23
Externalizing problems T-score			
Baseline	58.56 (11.14)	60.05 (9.89)	$t = 0.47$
Postintervention	54.16 (13.69)	57.91 (12.02)	$t = 0.99$

[a]Two outliers (505, 105) were recoded to 90; the next highest value was 77.

[b]Fisher's exact test statistic.

*
$p < .05$.

TABLE 2

Models of Intervention, Parent Distress, and their Interaction on Adolescent Sub-stance Use Outcomes ($N = 47$)

Model Parameter	Past 90-Day Substance Use Versus Nonuse			No. of Days of Use	
	b	SE_b	OR [95% CI]	b	SE_b
Model 1: Main effects on marijuana use					
Intervention	−0.62	0.65	0.54 [0.15, 1.93]	−0.73*	0.34
Parent distress	0.40	0.65	1.49 [0.42,5.36]	0.69*	0.28
Baseline marijuana use	0.02	0.01	1.02 [1.00, 1.04]	0.04***	0.01
Model 2: Interaction on marijuana use					
Intervention	1.93	1.19	6.87 [0.67, 70.74]	0.00	0.49
Parent distress	3.20*	1.53	24.52 [1.22, 493.14]	1.06**	0.36
Baseline marijuana use	0.02*	0.01	1.02 [1.00, 1.04]	0.04***	0.01
Intervention × parent distress	−4.34*	1.85	0.013 [<0.01, 0.491]	−1.28*	0.61
Model 1: Main effects on alcohol use					
Intervention	1.06	0.62	2.88 [0.85, 9.77]	0.32	0.37
Parent distress	−0.43	0.65	0.65 [0.18, 2.35]	−0.18	0.42
Baseline alcohol use	0.03	0.05	1.04 [0.94, 1.13]	0.08**	0.02
Model 2: Interaction on alcohol use					
Intervention	3.02**	1.16	20.39 [2.08, 199.83]	0.73	0.62
Parent distress	1.04	1.00	2.84 [0.40, 20.11]	0.13	0.57
Baseline alcohol use	0.05	0.05	1.05 [0.96, 1.15]	0.08**	0.02
Intervention × parent distress	−2.91*	1.42	0.05 [<0.01, 0.88]	−0.66	0.82

*
p < .05

**
p < .01

***
p < .001.

TABLE 3

Models of Intervention, Parent Distress, and their Interaction on Adolescent Sexual Risk Outcomes (*N* = 46)

Model Parameter	Past 90-Day Risky Sexual Activity (Yes vs. No)			No. of Risky Sexual Acts	
	b	SE_b	OR [95% CI]	b	SE_b
Model 1: Main effects on sexual risk					
Intervention	0.88	0.74	0.07 [0.01, 0.4]	1.01*	0.43
Parent distress	1.64*	0.74	5.17 [1.21, 22.03]	2.33***	0.51
Baseline risky sexual acts	0.02	0.01	1.02 [0.99, 1.05]	0.04***	0.01
Model 2: Interaction on sexual risk					
Intervention	1.76	1.53	5.79 [0.29, 115.77]	1.12	0.87
Parent distress	2.36	1.41	10.63 [0.68, 167.33]	2.39***	0.66
Baseline risky sexual acts	0.02	0.01	1.02 [0.99, 1.04]	0.04***	0.01
Intervention × parent distress -	−1.13	1.68	0.32 [0.01, 8.73]	−0.15	1.06

*
p < .05

***
p < .001.

TABLE 4

Models of Intervention, Parent Distress, and their Interaction on Adolescent Mental Health Outcomes ($N = 45$)

Model Parameter	Level of Internalizing or Externalizing Problems		
	B	SE_b	R^2
Model 1: Main effects on internalizing problems***			
Intervention	−1.97	2.48	0.44
Parent distress	0.97	2.72	
Baseline internalizing problems	0.86***	0.20	
Baseline externalizing problems	−0.14	0.15	
Model 2: Interaction on internalizing problems***			
Intervention	−7.59	3.95	0.48
Parent distress	−3.77	3.73	
Baseline internalizing problems	0.93***	0.20	
Baseline externalizing problems	−0.19	0.15	
Intervention x parent distress	8.82	4.90	
Model 1: Main effects on externalizing problems***			
Intervention	−2.20	3.37	0.35
Parent distress	−2.25	3.70	
Baseline internalizing problems	0.45	0.27	
Baseline externalizing problems	0.49*	0.20	
Model 2: Interaction on externalizing problems**			
Intervention	−5.55	5.54	0.36
Parent distress	−5.08	5.24	
Baseline internalizing problems	0.49	0.28	
Baseline externalizing problems	0.46*	0.20	
Intervention x parent distress	5.26	6.88	

*
$p < .05$

**
$p < .01$

***
$p < .001.$