

ARTICLE

# Enhancing daily affect in youth experiencing high-conflict parental divorce: A multiple baseline trial of an online prevention program

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## Abstract

This study investigated the effects of a highly interactive, online cognitive-behavioral youth coping program: Children of Divorce-Coping with Divorce (CoD-CoD; Boring et al., 2015) on children exposed to high levels of interparental conflict (IPC). A multiple-baseline experimental design ( $N = 9$ ) evaluated within-subject intervention effects on change in daily positive and negative affect before, during, and after the intervention (nobservations = 462). Participants were youth ages 11–16 who reported high exposure to IPC and whose parents had filed for divorce or parenting plan determinations in the prior year. A significant interaction effect indicated change in positive affect, but not negative affect, between the intervention and baseline phases. Positive affect linearly decreased during the baseline phase and flattened during the intervention phase. Results indicate that CoD-CoD was effective in interrupting a decline in youth-reported positive affect in a high-IPC sample, which may indicate a buffering effect against depression. Critical future directions include conducting large-scale randomized trials with children from high-IPC families to assess for whom the program is effective and assess long-term effects across a broad range of important outcomes.

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**KEYWORDS**

child mental health, coping, interparental conflict, parental divorce, prevention

**Key points**

- One of the most well-documented risk factors that predicts the development of youth mental health problems after parental separation/divorce is exposure to continuing high levels of interparental conflict.
- Adaptive coping is a modifiable protective factor for youth, and thus, it is to evaluate interventions that teach adaptive coping strategies to youth who are exposed to post- separation/divorce interparental conflict.
- An online coping program, Children of Divorce—Coping with Divorce (CoD-CoD) interrupted an average decline in daily positive affect (e.g., feeling happy, energetic, calm), but had no effect on daily negative affect (e.g., feeling sad, angry, upset) in a sample of youth exposed to high-conflict divorce.
- Based on the results of the two existing experimental trials, CoD-CoD may be considered a promising program to reduce adjustment problems for children from separated/divorced families including those experiencing high levels of IPC.

Each year approximately 1.1 million youth in the U.S. experience parental divorce (Kreider & Ellis, 2011). Youth in divorced families experience higher rates of mental health problems (e.g., depression, anxiety; Amato, 2010) than those from non-divorced families, yet the majority (roughly 65–75%) do not develop clinically significant problems (Hetherington & Kelly, 2002). One of the most well-documented risk factors that predicts the development of these mental health problems post-divorce is exposure to continuing high levels of interparental conflict (IPC) (Amato, 2010; Harold & Sellers, 2018; Kelly, 2000).

The identification of IPC as a robust risk factor for youth after divorce has led to a search for modifiable protective factors such as active and distraction coping (Sandler et al., 1994). One 6-year longitudinal study found that children's coping efforts moderate the effects of IPC trajectories on mental health problems (O'Hara et al., 2019). Interventions that teach youth to cope with a variety of divorce-related stressors have been shown to reduce their post-divorce mental health problems up to 2 years later (Stathakos & Roehrl, 2003). However, despite the known risks associated with high post-divorce IPC, no coping interventions have been tested with this high-risk group.

Coping programs that target youth are a critical piece of expanding the reach and public health impact of preventive programs for divorcing families. This is especially relevant for youth exposed to high post-divorce IPC. Youth rate IPC is one of the most stressful divorce-related events (Wolchik et al., 1986). Further, the parents of children experiencing high IPC are less likely to attend voluntary parenting programs (Braver et al., 2016) and are more likely to drop out prematurely (Mauricio et al., 2017). Thus, it is crucial that we evaluate interventions that directly support

the youth in this high-risk subgroup. It is important to note that child coping interventions do not target reductions in interparental conflict. Instead, they provide youth with coping skills to reduce the harmful effects of IPC on their post-separation/divorce adjustment.

## Children of divorce—Coping with divorce

CoD-CoD is a five-session online program that promotes youth's adaptive coping after parental divorce. It was evaluated in a randomized controlled trial of 147 youth ages 11–16 (Boring et al., 2015). Results showed that youth in CoD-CoD improved on self-reported emotional problems relative to youth in an online program control ( $d = 0.37$ ) and had a lower rate of clinically significant self-reported mental health problems ( $OR = 0.58, p = 0.04$ ) at the 1-month follow-up. Further, youth who entered the program with higher baseline problems or lower coping efficacy benefitted most. Although CoD-CoD demonstrated positive effects in a general sample of youth from divorced families, its efficacy with youth who are experiencing high levels of IPC after divorce is unknown. This is an important gap in our understanding of the effects of CoD-CoD and other coping programs because no program has demonstrated effects to reduce adjustment problems of children from high-conflict separating/divorcing families.

## Current study

The current study builds on evidence of CoD-CoD's efficacy with a general population of children from divorced families by evaluating its effects for youth exposed to high post-divorce IPC. We chose a multiple baseline experimental design because it is a rigorous and efficient method of establishing preliminary efficacy of an intervention in a new population (Barlow et al., 2009; Kazdin, 2011). We tested intervention effects on daily positive affect (PA) and negative affect (NA) (e.g., degree of feeling happy or calm and sad or nervous, respectively). PA and NA are commonly used proxies for mental health outcomes (e.g., “subjective well-being” [Coyle & Vera, 2013]) that are sensitive to detecting change on a daily level of analysis (Bolger & Laurenceau, 2013) and related to traditional measures of childhood depression and anxiety (Laurent et al., 1999).

## METHOD

### Study design

We used a multiple-baseline experimental design (Barlow et al., 2009; Kazdin, 2011). This single case experimental design is powered to detect within-subject intervention effects by collecting many repeated measures before and after the introduction of an intervention from a few individuals. It is a highly efficient method to draw inferences about the effects of an intervention while controlling for multiple threats to internal validity, such as history, repeated assessment, and regression to the mean (Barlow et al., 2009; Kazdin, 2011). Although the sample size is generally small in this design, it has been successfully used to test treatment of co-occurring ADHD and anxiety in children ages 8–12 ( $N = 8$ ; Jarrett & Ollendick, 2012) as well as novel implementation approaches for pediatric OCD ( $N = 8$ ; Benito et al., 2020) and childhood specific phobia ( $N = 8$ ; Farrell et al., 2021) interventions.

The multiple baseline design is a within-subjects experimental design that reduces threats to internal validity (e.g., history and maturation) through its design features. This increases researchers' confidence in making inferences about the effects of an intervention on participant outcomes. In place of a placebo or alternative treatment control condition, each participant's baseline evaluation serves as their control condition. In multiple baseline studies, staggering the introduction of the intervention by varying the length of baseline evaluation across individuals is the primary method of experimental control (Kazdin, 2011). Introducing the intervention at different times within each

participants' series of observations (e.g., after five baseline observations for a subset, after seven baseline observations for another subset), makes it more likely that any change observed between baseline and intervention phases is due to the intervention rather than history (i.e., another event that occurred at the time of intervention) or maturation (i.e., simple passage of time). In the current study, there were no elements of randomization to baseline phase length and all participants received the same intervention.

## Participants

Participants were nine youth ages 11–16 ( $M = 13.6$ ,  $SD = 1.3$  L; 7 self-identified as boys and 2 self-identified as girls). Their parents filed a petition in family court for divorce or custody determination within the prior 12 months ( $M = 7.5$ ,  $SD = 2.7$ ). Due to the small sample size, detailed demographic data were not collected to ensure participant confidentiality.

## Procedure

The Institutional Review Board at the University of Arizona approved all study procedures. Eligible families were identified via publicly available court records and recruited by invitation letters and study flyers (see CONSORT; Figure 1).

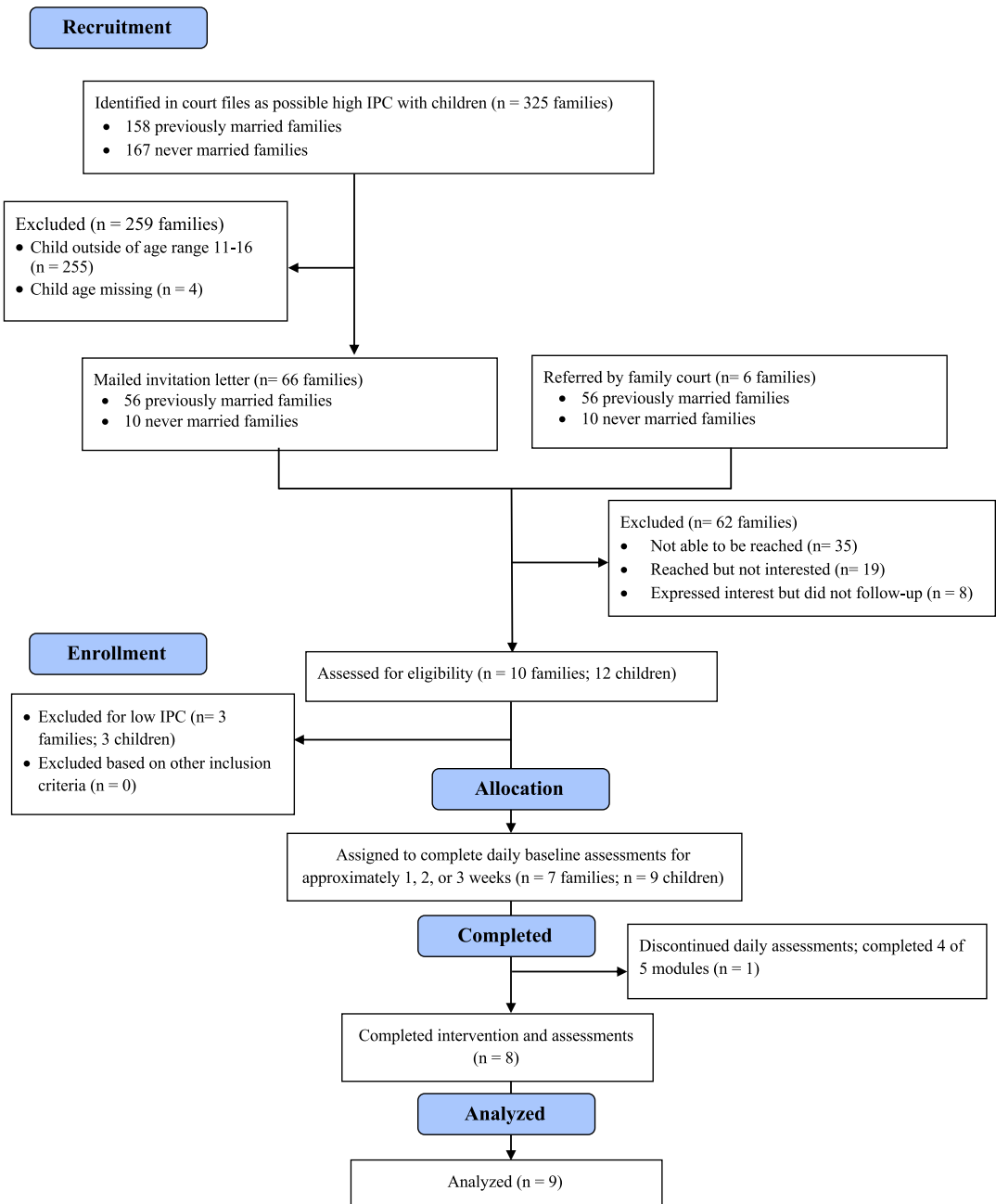
The research team conducted screening calls with parents of potential participants to assess preliminary inclusion criteria (i.e., one parent who could report on youth mental health symptoms,<sup>1</sup> daily access to text messaging or email, and weekly access to an internet-connected computer). Depending on participant preference, parent consent and youth assent were obtained during an in-laboratory intake session or explained by phone and obtained via mail. Participants were considered to be exposed to high levels of conflict and eligible for the study if they reported a past-month IPC exposure score that was higher than the average score in a prior study of 559 children whose parents participated in a parenting-after-divorce intervention trial ( $M = 1.65$ ,  $SD = 0.44$ ; see Sandler et al., 2020). Youth who did not meet this inclusion criterion were offered access to CoD-CoD but did not participate in the research study. In total, 18 participants were recruited and completed the study intake session, nine met inclusion criteria for enrollment in the online intervention, and eight completed the intervention.

Participants were notified at the end of the baseline period, given a unique username and password, and instructed to proceed through five weekly, sequential, online modules. They were compensated weekly across baseline and intervention phases for completing study measures and entered a drawing for an iPad if they completed all five modules. They received \$1 for each daily survey and \$5 for each weekly survey they completed. Participants were sent automated text message or email reminders each day for their daily surveys and each week for their intervention modules.

Each participant was assessed daily before (baseline phase), during (intervention phase), and after the intervention (follow-up). Participants started the intervention at different points in time after their assigned baseline phase (12–25 days). The length of the intervention phase (five weekly online modules; 35 days of daily assessment) and the follow-up phase (1 week following completion of the intervention; 7 days of daily assessment) was the same for each participant. In total, participants were asked to complete daily assessments for their individualized baseline period (i.e., 12–25 days) plus 42 days of daily assessments following the introduction of the intervention (i.e., 5 weeks of intervention plus 1 week of follow-up).

We collected baseline data for at least 7 days in order to meet published guidelines for the minimum number of data points per phase (Kratochwill et al., 2010). Baseline data were inspected after 10 days for the first five participants to determine sufficient stability for evaluating intervention effects (Kazdin, 2011). Baseline scores were

<sup>1</sup>Parent reports of child mental health problems were collected at pre/post-intervention only and thus were not under experimental control in this multiple baseline study; see O'Hara, 2017 for descriptive results from these analyses.



**FIGURE 1** CONSORT diagram illustrating recruitment procedures. The following legal indicators were used to determine a positive screen for high IPC in court files: response filed to dispute claims in original motion for divorce, court-ordered mediation to settle disputes, orders of protection, petition to modify existing orders, notice of court hearing, filing of temporary orders. IPC, interparental conflict. One participant dropped out of the study prior to completing the intervention and assessments. However, consistent with an intent-to-treat approach, we included all nine participants in the analysis

considered sufficient when the trend in outcome variables was flat (slope <0.10) or in the opposite direction of the expected intervention effect (e.g., the outcome shows a deteriorating outcome during baseline, which is opposite from an expected improving slope following intervention). Subsequent participants were assigned a baseline period

of approximately 1, 2, or 3 weeks. Participants were allowed to begin the intervention on their most convenient day of the week; thus, if they were assigned a 1-week baseline, their actual baseline could be between 7 and 14 days. Four participants completed a 12-day baseline, three completed a 15–18-day baseline and two completed a 24–25-day baseline. Only one participant dropped out prematurely (i.e., after completing their baseline assessments and then only 6 days of intervention).

## Measures

The data reported in this manuscript were collected as part of the first author's doctoral dissertation study (see MASKED). As part of the overall study, participants completed a 159-item pre-intervention assessment and 95-item post-intervention assessment, as well as 78-item weekly assessments, and 12–14 item daily assessments. Daily assessments were designed to be completed in <5 min to reduce the potential for measurement fatigue. For the analyses reported in the current manuscript, we first assessed the measures from the original dissertation study for psychometric sufficiency (e.g., validity and reliability previously established; not created in-house for the study) and experimental control (e.g., sufficient number of observations across baseline and intervention phases) for assessing sample-level intervention effects. Only the Positive and Negative Affect Schedule—child version (PANAS-C; Laurent et al., 1999) met this criterion and thus, it was the only measure we analyzed to test intervention effects and is the only outcome measure reported in the current manuscript. Other findings from the data collection effort are reported in a publicly available dissertation archive. Please see (MASKED link) for a complete description of study measures and results from other analyses.

### Children's perception of Interparental conflict scale

Youth completed the frequency and intensity subscales (13 items; 3-point Likert scale;  $\alpha = 0.83$ ) of the Children's Perception of Interparental Conflict Scale (CPIC; Grych et al., 1992) for the purpose of eligibility. The CPIC's reliability and predictive validity is well-established across samples (e.g., Moura et al., 2010).

### Positive and negative affect schedule—Child version

Youth completed the 30-item PANAS-C at intake (Laurent et al., 1999;  $\alpha = 0.91$  [positive affect; PA], .94 [negative affect; NA]); indicating the extent to which they experienced each emotion over the last 30 days on a 5-point Likert scale: *very slightly or not at all* (1), *a little* (2), *moderately* (3), *quite a bit* (4), *extremely* (5). From this, an idiographic measure was developed for each youth comprised of the most extreme 3–4 PA and NA items (e.g., happy, calm; sad, frightened;  $\alpha = .78$  [PA], .73 [NA]). A composite score assessed each youth's daily PA and NA. Daily PA and NA are each associated with several indicators of mental health problems, including stress, anxiety, and depression (Laurent et al., 1999; Santiago et al., 2017).

## Intervention

CoD-CoD (Boring et al., 2015) targets active and avoidant coping, coping efficacy, and divorce appraisals through psychoeducation delivered via videos and narrated text, interactive activities to learn and practice coping skills, testimonials, and tracking of skills practice. Participants' engagement in the intervention was measured by completion of

the online modules and associated home practice assignments. CoD-CoD was previously demonstrated to increase positive coping and reduce children's mental health problems in a randomized controlled trial ( $N = 147$ ; Boring et al., 2015). Please see Appendix A for details about the intervention.

## Data analysis approach

We analyzed the daily time series data collected during the baseline and intervention phases using multilevel modeling. We used the R package “ggplot” for data visualization and the PROC MIXED procedure in SAS 9.4 to fit longitudinal models with full information REML estimation. REML estimation provides reliable estimates with missing data in small samples (McNeish, 2017). The biggest advantage of using multilevel modeling to analyze multiple baseline studies is that you can analyze all cases together in one analysis, instead of assessing each participant's data individually. This allows for a more meaningful assessment of the average effect of an intervention (Ferron et al., 2009).

Despite the advantage of using multilevel modeling to analyze data from multiple baseline studies, there are three important issues that must be accounted for. First, multiple baseline studies typically have small samples. To account for this, we used the Kenward Roger correction to adjust degrees of freedom, which has been shown to produce unbiased estimates in small samples (McNeish, 2017). Second, multiple baseline studies result in time series data, where there are multiple observations collected over time within each participant. In time series data, observations collected closer in time are likely to be more correlated than observations collected further apart in time (e.g., the extent to which a person feels sad today is more likely to affect how sad they feel tomorrow than how sad they feel a week from tomorrow). This results in autocorrelation, which can bias statistical analysis if not accounted for in the statistical model. We specified a first-order autoregressive error structure to account for autocorrelation (West & Hepworth, 1991). Third, multilevel models typically assume that the error structure is the same for all participants and this can result in bias. Thus, in our analyses, the Level-1 error covariance matrix was allowed to vary across participants (Baek & Ferron, 2013). We conducted sensitivity analyses to examine the degree to which estimates of intervention effects were affected by these modeling decisions and report discrepancies where indicated. In all models, we first attempted model convergence with all random effects (i.e., estimating variability in parameters across participants). If the model failed to converge, we removed the random effect of phase to adequately model the primary within-person effect of change over time. Youth were clustered in families (two sibling sets), so we adjusted standard errors using the model design effect (Huang, 2016). Because it may take time to practice new skills, delayed intervention effects were plausible; thus, we tested a quadratic effect to assess nonlinear change during baseline and intervention phases.

Participants were instructed to complete the measures daily; however, some participants submitted data for several days at once. To reduce bias introduced by retrospective reporting, the data for the day of reporting was retained; the days for which data was reported retrospectively were considered missing. One participant stopped completing daily surveys within the first week of the intervention phase. Missingness was 16.67% for PA and NA. We used an intent-to-treat design to reduce bias by including all participants who started the study in our analysis, including the one participant who dropped out prematurely.

## RESULTS

### Descriptive statistics

The average level of child-reported conflict exposure was 2.15 ( $SD = 0.43$ ) on a scale of 1–3. All participants were above the mean of the larger sample ( $N = 559$ ;  $M = 1.65$ ,  $SD = 0.44$ ; Sandler et al., 2020). Based on a standard

**TABLE 1** Unstandardized regression coefficients from mixed effects models assessing intervention effects on positive and negative affect

Effect	Model 1: Linear change		Model 2: Quadratic change	
	Estimate (SE)	<i>p</i>	Estimate (SE)	<i>p</i>
Positive affect				
Intercept	2.81 (0.26)	<0.001*	2.78 (0.27)	<0.001*
Phase	0.33 (0.09)	0.001*	0.38 (0.13)	0.006*
Time0 (baseline)	-0.02 (0.01)	0.012*	-0.03 (0.02)	0.226
Phase*Time0	0.02 (0.01)	0.017*	0.02 (0.02)	0.360
Time (intervention)	0.00 (0.00)	0.992	—	—
Time0*Time0	—	—	-0.00 (0.00)	0.679
Phase*Time0*Time0	—	—	0.00 (0.00)	0.596
Negative affect				
Intercept	2.15 (0.24)	<0.001*	2.26 (0.27)	<0.001*
Phase	-0.15 (0.14)	0.265	-0.38 (0.20)	0.060
Time0 (baseline)	-0.00 (0.01)	0.887	0.03 (0.03)	0.380
Phase*Time0	-0.00 (0.01)	0.854	-0.01 (0.03)	0.750
Time (intervention)	-0.00 (0.01)	0.622	—	—
Time0*Time0	—	—	0.00 (0.00)	0.305
Phase*Time0*Time0	—	—	-0.00 (0.00)	0.149

Notes. Effect interpretations are as follows: **Intercept**: baseline phase intercept, **Phase**: immediate shift in level between baseline and intervention phases, **Time0 (baseline)**: baseline phase linear slope, **Time (intervention)**: intervention phase linear slope, **Phase\*Time0**: change in linear slope between baseline and intervention phases, **Time0\*Time0**: intervention phase quadratic slope, **Phase\*Time0\*Time0**: change in quadratic slope between baseline and intervention phases.

Abbreviations: Estimate, unstandardized regression coefficient; SE, standard error.

*p* = *p* value.

\**p* < 0.05.

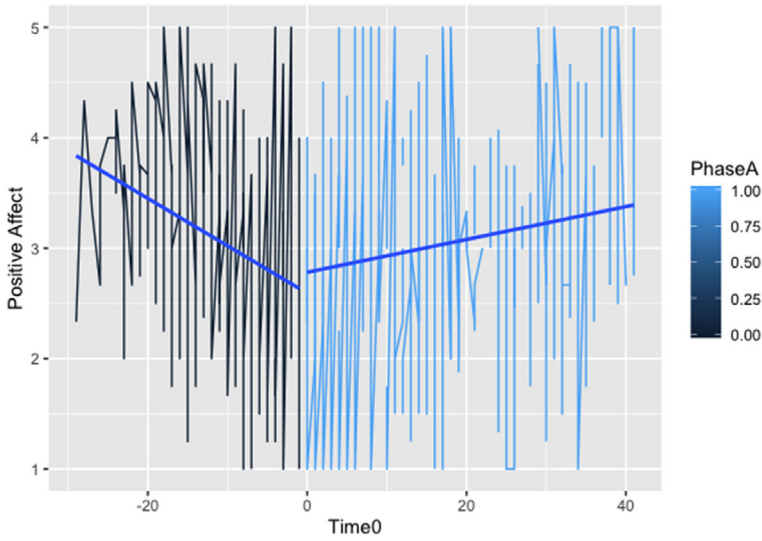
normal distribution, the sample mean score represents the 87th percentile in the larger sample. The number of baseline observations ranged from 12 to 29 days. Participants completed 6–42 intervention phase daily surveys. In total, there were 462 daily observations across nine participants. The program completion rate was 89%; youth completed 4.89 modules on average (97.8% of the 5-module program). Youth reported fully or partially completing 74.3% of the home practice tasks for modules they completed.

## Intervention effects

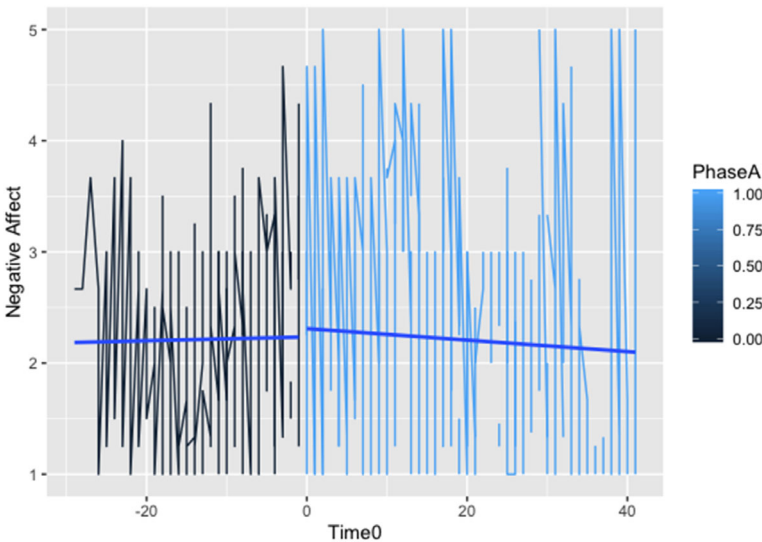
The mixed effects model for PA (see Table 1) showed a significant phase by time interaction ( $b = 0.02$ ,  $SE = 0.01$ ,  $t [49.10] = 2.47$ ,  $p = 0.017$ , 95% CI = 0.003, 0.033). This indicated a significant change in the slope of PA between the intervention and baseline phases, such that PA linearly decreased during the baseline phase ( $b = -0.02$ ,  $SE = 0.01$ ,  $t [37.50] = -2.63$ ,  $p = 0.012$ , 95% CI = -0.032, -0.004) and flattened during the intervention phase ( $b = 0.00$ ,  $SE = 0.00$ ,  $t [9.04] = 0.01$ ,  $p = 0.992$ , 95% CI = -0.010, 0.010; see Figure 2).<sup>2</sup> There was no significant

<sup>2</sup>When we constrained the error covariance matrix to be constant across participants, there was a detriment to model fit (AIC/BIC increased from 771.6/775.6 to 895.0/895.8) and the phase by time interaction was in the same direction but no longer statistically significant ( $p = .070$ ). When we added a quadratic term to the model, there was no evidence of nonlinear change over time ( $p = .596$ ). There was no substantive change in the significance of model parameters after adjusting for the model design effect.





**FIGURE 2** Graph depicting model-implied values of positive affect across baseline and intervention phases. The left side of the graph shows scores on Positive Affect during the baseline period; the right side shows scores on Positive Affect during the intervention period



**FIGURE 3** Graph depicting model-implied values of negative affect across baseline and intervention phases. The left side of the graph shows scores on Negative Affect during the baseline period; the right side shows scores on Negative Affect during the intervention period

linear change in the slope of NA between the intervention and baseline phases ( $p = 0.854$ ) (see Figure 3). There was also no evidence of linear change during baseline ( $p = 0.887$ ) or intervention ( $p = 0.662$ ) phases nor a change in quadratic slope between phases ( $p = 0.149$ ). Taken together, this pattern of results suggests that CoD-CoD had a positive effect to reduce the decline in PA but no effect on NA.

## DISCUSSION

The most important finding from our study is that CoD-CoD interrupted an average decline in daily PA (e.g., feeling happy, energetic, calm) in a sample of youth exposed to high-IPC divorce. This study extends the findings from a randomized controlled trial of CoD-CoD which compared outcomes for a general population of youth from divorced families randomly assigned to CoD-CoD or another website for children from divorced families (Boring et al., 2015). The current findings are particularly important as the first experimental demonstration that an online child coping program had a positive impact on adjustment of children from high-IPC divorced families. These findings add to prior findings that CoD-CoD (Boring et al., 2015) had its most beneficial effect on children who were at highest risk as measured by a general measure which assessed child and family risk factors. Finally, our use of a multiple baseline design answers a call for research examining individual-level data to illuminate intervention effects (Barlow & Nock, 2009).

Although CoD-CoD interrupted a decline in PA, there was no evidence of change in NA. Intervention-induced change in PA may be clinically meaningful because low PA can exacerbate the deleterious effects of stressful events (Fox et al., 2010). It is important to consider the implications of the differential results observed for PA and NA. As outlined in the tripartite model, PA and NA differentiate risk for depression and anxiety (Clark & Watson, 1991). Indeed, empirical studies have shown that PA protects against depression whereas co-occurring low PA and high NA indicates risk for anxiety (Compas et al., 2004). Thus, an intervention effect that increases PA *and* decreases NA might lead to improvements in anxiety and depressive symptoms, while an intervention-induced increase in PA alone might lead to improvement in only depressive symptoms. According to this model, the pattern of intervention effects indicates that for youth exposed to high IPC, CoD-CoD may prevent worsening depressive symptoms over time but may not affect anxiety. This is clinically important because children who experience IPC are at higher risk for a host of mental health problems, including depression (see Harold & Sellers, 2018). Although the measures do not allow us to identify mechanisms that mediate the intervention effect, it is plausible that the effect on PA was driven by enhanced coping efficacy. CoD-CoD has been demonstrated to improve coping efficacy (Boring et al., 2015) and coping efficacy is associated with PA (Massey et al., 2011). Parsing out the mechanisms underlying intervention-induced changes in PA is an important direction for future research.

Clinically, it makes sense that a general coping program may not relieve anxiety in youth experiencing the uncontrollable stress of high-IPC divorce. The failure of CoD-CoD to decrease NA suggests the program may need to be augmented when delivered to youth exposed to high-IPC divorce. One possibility is to enhance coping skills specific to the anxieties associated with IPC (e.g., fear of abandonment by one or both parents [O'Hara et al., 2021] and worry that the IPC is their fault [Grych et al., 1992]). This would also test an approach to improving preventive coping programs by specifically targeting the threats raised by the stressors most relevant to the population (Forsythe & Compas, 1987).

The contribution of this study should be considered in light of its limitations. First, note that the conclusion of this study is based on group-level statistical analyses and does not mean that the effect was the same for every child in the sample. As you can see in Figure 2, there was variability in positive affect scores, particularly during the baseline period (for example, there are some reports of high positive affect at the end of the baseline period despite the average decline across the baseline period). Multiple baseline designs require stable baseline scores to make clear conclusions about treatment effects. The few cases with increasing positive affect during the baseline period weaken the strength of causal inference regarding CoD-CoD's effects. Second, no experimental design eliminates all threats to internal validity; the goal is to make it implausible that alternative explanations could explain the study results. Although multiple baseline experimental designs reduce important threats to internal validity (e.g., history, maturation, testing, statistical regression, selection) in an efficient, low-cost manner, they do not eliminate all threats to internal validity (e.g., social desirability or the desire to report positive effects when receiving an intervention) and their efficiency comes at the cost of external validity (Barlow et al., 2009; Kazdin, 2011). With regard to internal validity, for example, an active control group could rule out the alternative explanation that children respond

positively to any coping intervention, not CoD-CoD specifically. It is critical that this work be replicated in a randomized trial in which the effects of CoD-CoD are compared with one or more control conditions with a large sample of children in high conflict divorces. Single case experimental designs are well-suited to provide pilot data on the *likely* causal effect of an intervention. They can provide reliable evidence that an effect exists within a particular sample and therefore provide strong justification for the resources needed for a large-scale randomized trial. Randomized trials are considered the gold standard experimental design for evaluating a causal, group-level effect of an intervention in a confirmatory manner. Thus, definitive conclusions about CoD-CoD's efficacy with children exposed to high-conflict divorce cannot be made in the absence of future research. Third, according to published standards for multiple baselines designs (Kratonchwill et al., 2013), our sample size is sufficient for drawing valid inferences about CoD-CoD's effects in our sample. However, it does not allow the assessment of moderators (e.g., ethnicity, age, gender, SES) that might be assessed in a large-scale randomized trial. Such a study could answer questions such as: "for which children and under which conditions does this intervention have an effect?" Fourth, although daily affect is related to traditional measures of children's mental health problems (Laurent et al., 1999), to our knowledge, there is no existing standard to discern clinical significance of change in daily affect. Considering this study's limitations and the deleterious mental health consequences of post-separation/divorce IPC, this study is best viewed as a pilot study that supports testing coping intervention effects with a large and diverse sample of youth from high-IPC families in a randomized trial that includes long-term assessments.

Based on the results of the two existing experimental trials (i.e., Boring et al., 2015 and this study), CoD-CoD may be considered a promising program to reduce adjustment problems for children from separated/divorced families, including those experiencing high levels of IPC. The fact that the program is online makes it highly accessible to most of the general public.<sup>3</sup> It is also, to our knowledge, the only program to demonstrate effects with children in high-IPC divorces. Thus, CoD-CoD is a potentially useful resource for those working with high-IPC families in the family law community. However, we believe this high-risk group of youth could benefit from a more targeted program designed specially to meet their needs. A critical piece to developing a highly targeted program is to identify the "active ingredients" or coping strategies that are particularly effective for children coping with high-IPC separation/divorce. This type of formative research will contribute to an optimized intervention that is efficient, cost-effective, and comprised only of components that have demonstrable effects on key outcomes for this group of youth who are at high risk for mental health problems after parental separation/divorce.

## COMPETING INTERESTS STATEMENT

Jesse L. Boring and Irwin N. Sandler are partnered in offering the Children of Divorce—Coping with Divorce program commercially through Family Transitions—Programs That Work, LLC.

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<sup>3</sup>CoD-CoD is a digital program readily available to families with internet access; other evidence-based youth coping programs (e.g., Children's Divorce Intervention Program; Pedro-Carroll, 2005) are group-based and required implementation by a school or mental health agency.

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## APPENDIX A

Children of Divorce—Coping with Divorce (CoD-CoD), consists of five modules designed to bolster youth adjustment following parental divorce/separation. Detailed information about CoD-CoD is available at <http://familytransitions-ptw.com/CoDCoD/parents/index.html>. Program elements are based on a cognitive-behavioral framework, and target four theoretically-derived modifiable variables (putative mediators) including active coping, avoidant coping, coping efficacy, and divorce-related cognitive appraisals (Boring et al., 2015). See Figure A1 for theoretical links between CoD-CoD program components and targeted mediators.

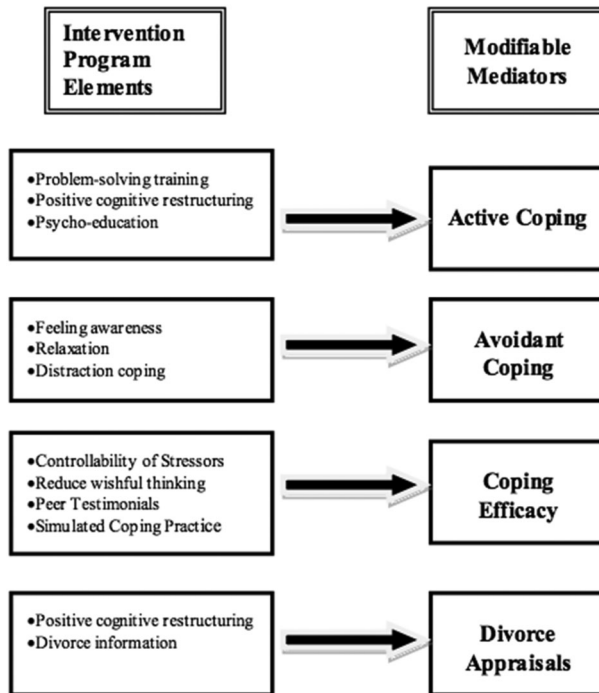
The overall design of the program consists of five modules, the content of which are described below. The program is led by one male and one female guide who provide information, introduce activities, and model new skills via video and/or audio using a humorous and informal style to keep youth engaged. The first and last modules are formatted as introduction and wrap-up/review sessions designed to orient participants to the program and overarching goals, and then consolidate gains and skills, respectively. Modules 2–5 have the following format: report on home practice completion, track progress toward self-defined program goals, learn a new skill and specific implementation techniques, practice identifying and generating examples of the new skill, and choose a new home practice option. The program content is delivered through a framework designed to maximize participant engagement through interactive activities, personalized material based on selected content areas, video demonstrations, and personal stories told by the program guides, and testimonials of youth who successfully use the program skills. Participants receive personalized feedback on skill use during program activities, homework completion, and progress toward their self-generated program goal. They are rewarded for demonstration of content knowledge by earning advantages in a videogame available to them at the end of each module.

*Module 1 Introduction.* The goals of the first module are to orient the youth to the program, present general information about emotion (the universal human experience of positive and negative emotions and the functions of basic emotions), link common divorce/separation stressors to emotional experiences in children, and highlight the

importance of recognizing and expressing feelings. The program guides discuss ideas about how the intervention might help, including dealing with stressful situations, difficult feelings and the common desire to hide feelings. The participant is prompted to set a program goal that is realistic and helpful and to choose a home practice option to either discuss how they feel with others, to privately track feelings, or to do both. The content quiz assesses knowledge of general facts about human emotion, common experiences reported by children of divorce, reasons for hiding feelings and why it is a bad idea, and specific content of examples given during the module.

*Module 2 “Inside Tools.”* The second module introduces the cognitive model and explicates relationships between events, thoughts, feelings, and behaviors. The skill of cognitive restructuring is presented as differentiating between hopeful (positivity and self-boosters) and hurtful (doom and gloom and self put-downs) thinking. Participants are taught a four-step model to stop and notice thoughts, and then brainstorm and pick alternative, hopeful thoughts that make sense for their particular situation. They are exposed to alternative coping strategies, including relaxation and distraction, to use under circumstances in which emotions are too overwhelming to engage in cognitive restructuring. The content quiz assesses knowledge of the cognitive model, steps for effective cognitive restructuring, and theory underlying relaxation techniques, as well as participants' ability to apply the cognitive model using vignettes. The home practice assignment is a choice between practicing the four-step model for noticing thoughts, using a relaxation technique, or attempting both.

*Module 3 “Outside Tools”—Communication.* The third module presents facts about divorce from scientific studies in an age-appropriate and accessible manner and discusses circumstances under which Inside versus Outside Tools may be more effective. Participants play an interactive game to differentiate controllable and uncontrollable stressors and then learn four steps to effective communication (e.g., find the right time and request to talk, be



**FIGURE A1** Links between CoD-CoD program elements and putative mediators. Reprinted from “Children of Divorce—Coping with Divorce: A Randomized Control Trial of an Online Prevention Program for Youth Experiencing Parental Divorce,” by J.L. Boring, I. N. Sandler, J. Tein, J. J. Horan, and C. E. Velez, 2015, *Journal of Consulting and Clinical Psychology*, 83, p. 1000. Copyright 2015 by the American Psychological Association. Reprinted with permission

specific about what you want, use “I” messages, and end the conversation by summarizing and/or expressing gratitude). Specific strategies are offered regarding how to initiate positive discussions using communication skills. The content quiz assesses knowledge of guidelines for effective communication and the step-by-step model of constructing an effective “iMessage,” as well as ability to differentiate types of messages and identify daily practice as the key to skill-building. The home practice assignment is for the participant to use the CoD-CoD communication skills to talk to their parent about a topic of their choice that matters to them.

*Module 4 “Outside Tools”—Problem Solving.* The fourth module focuses on problem-solving training by introducing a systemic model (e.g., “SWIFT Action Plan”—5 steps: explore the problem, figure out what you want, search your toolbox, feel out selected tools, try it out) for identifying and exploring problems and then developing and implementing action plans. Participants are taught to search their personal toolbox and choose among various coping strategies when confronted with problems. The content quiz uses vignettes to assess knowledge of the five steps to problem solving and ability to select coping skills appropriate to context. The home practice assignment is for the participant to use the CoD-CoD problem solving system and their program skills to imagine a new way they could have handled a substantial problem from their past.

*Module 5 Integrating Problem Skills.* The final module discusses how to use problem-focused coping skills in daily life and summarizes the skills learned throughout the program. Program guides present information about how to practice skills in the real world and encourage participants to apply newly learned skills in their own lives. The module goal is to consolidate gains and skills.