Changing Child-Related Attitudes and Discipline Expectations Through Evaluative Conditioning

Evaluative Conditioning also known as a type of Affective Conditioning (A form of Associative Conditioning)

Joel S. Milner, Michael F. Wagner, and Julie L. Crouch

Overarching Research Goal

To reduce parents’ use of harsh verbal discipline, use of harsh physical discipline, and use of punishment (harm).


Outline of SIP Model of CPA Components

Pre-existing schema (information structures that exist prior to the processing of new information, e.g., negative child-related attitudes, expectations)

Stage 1: Perceptions
Stage 2: Interpretations and evaluations
Stage 3: Information integration and response selection
Stage 4: Response implementation and response monitoring

SIP Model of CPA components of interest: Pathway from negative attitudes to attributions of hostile intent to negative affect to harsh discipline and punishment.

1Harsh discipline includes harsh verbal discipline and harsh physical discipline.
2Punishment (retribution) involves behaviors that harm.
Focus on attributions of hostile intent

Given the documented association between attributions of hostile intent to other’s behaviors and aggressive behavior, it is not surprising that attempts to reduce aggression have focused on altering how aggressive individuals view others.

For example, interventions designed to reduce hostile attributions in school children have sought to teach children to make non-hostile attributions of intent when interpreting peer behavior (Hudley et al., 1998; Hudley & Graham, 1993).

Recent attempts to reduce adolescent aggression have sought to teach adolescents implicit theories about others (i.e., teaching that others can change) to reduce attributions of hostile intent and decrease aggression in response to perceived peer provocation (Yeager et al., 2013).

With respect to reducing adults’ attributions of hostile intent to children, some programs have attempted to teach high-risk and abusive parents that many child behaviors are non-hostile (benign or positive in intent). Such efforts are designed to promote the generation of non-hostile (e.g., non-blaming) attributions when interpreting children’s behaviors (e.g., Bugental et al., 2002).

Overall, educational/instructional approaches have met with some success in changing attributions of hostile intent.

So why didn’t we elect to use educational/instructional approaches to change parents’ child-related attributions of hostile intent in the present research?

Potential limitations of educational/instructional approaches.

Efforts designed to change existing attitudes through educational approaches face potential challenges because some of the information provided (e.g., benign or positive explanations for children’s behaviors) will be inconsistent with the negative child-related attitudes of high-risk and abusive parents.

When new information is inconsistent with one’s attitudes, such inconsistencies typically result in efforts to resolve the discrepancy in a manner that maintains existing attitudes. This process has been described as “motivated reasoning.”

The tendency to seek data or to interpret data in a manner that confirms existing attitudes is referred to as “confirmation bias,” which can even result in a strengthening of the original attitudes (i.e., “attitude polarization”).

Evidence of motivated reasoning has been reported after persuasive arguments and after factual (educational) information has been presented. Such processes may account for instances where child abuse intervention participants do not change or appear to get worse after intervention.

Although speculation, it also is possible that cognitive dissonance created by educational programs contributes to the high dropout rates (sometimes exceeding 50%) reported by parent education programs targeting high-risk and abusive parents.

As an alternative to attempting to directly change attributions of hostile intent, we sought to use positive Evaluative Conditioning (EC) to reduce individuals’ existing negative child-related affective attitudes, which are thought to increase the likelihood of child-related attributions of hostile intent, hostile intent-related anger, and child-directed aggression.
EC was chosen because:

1. EC is a technique that is commonly used to change implicit attitudes;
2. EC can be very brief in duration;
3. EC effects are independent of the participant’s cognitive resources, such as attentional resources;
4. EC can be used with individuals with different levels of readiness for change;
5. EC stimuli can be presented out of the participant’s awareness, thus reducing the impact of motivated reasoning;
6. EC effects do not appear to be moderated by participants’ demographics;
7. EC changes often generalize to exemplars of the conditioned category;
8. EC changes tend to be maintained across time (resistant to extinction);
9. EC can be delivered by individuals with varying degrees of training and skills.

So I expect that some or most of you want to know - what is Evaluative Conditioning (EC)?

EC is defined as a change in a stimulus valence that occurs following repeated pairings of the stimulus with a second positive or negative stimulus.

EC can be viewed as a form of classical conditioning where the first stimulus is the conditioned stimulus (CS), originally called the conditional stimulus (Pavlov, 1930/1941), and the second stimulus is the unconditioned stimulus or unconditional stimulus (UCS).

In EC, the learning is considered evaluative learning, where the CS elicits the UCS valence without eliciting the UCS expectancy, which contrasts with expectancy learning where the CS elicits the UCS expectancy.

Classical Conditioning
Trace Conditioning
During trace conditioning, the onset of the CS precedes the onset of the UCS in order to signal that the UCS will follow. During conditioning the CS and UCS do not overlap. Learning is fastest in delay conditioning.

Simultaneous Conditioning
During simultaneous conditioning, the CS and UCS are presented simultaneously. Due the temporal contiguity, simultaneous conditioning might be expected to be a highly effective conditioning procedure. However, simultaneous conditioning is less effective than trace conditioning.
Evaluative Conditioning of neutral stimuli.

Initially, EC studies consisted of repeatedly pairing a neutral CS with a positive or negative UCS. After repeated pairings, the previously neutral CS was found to elicit the valence associated with the UCS.

One of the first EC studies involved pairing nonsense syllables (CS) with a positive or a negative word (USC), which resulted in the nonsense syllables taking on the valance of the UCS (Staats & Staats, 1957).

Subsequent EC studies have used a variety of neutral stimuli (e.g., Chinese symbols) and most have found the expected conditioning effects (see meta-analyses by Hofmann et al., 2010).

Although still in a nascent state, there is a growing body of research that has investigated the extent to which EC can change existing positive or negative attitudes.

In general, two types of studies have been conducted.

One group of studies has used EC to establish a positive or negative valence for a neutral stimulus and then used EC to produce changes in the conditioned valence (e.g., Baeyens et al., 1992; et al., 2009; Raes & De Raedt, 2012; Van Gucht et al., 2010; Walther et al., 2009).

A second group of studies used EC to change positive or negative attitudes that already exist in participants, such as:

1. attitudes related to racial prejudices (Olson & Fazio, 2006);
2. social anxiety (Clerkin & Teachman, 2010);
3. alcohol liking (Houben et al., 2010);
4. food choices (Hollands et al., 2011; Lebens et al., 2011);
5. brand preferences (Gibson, 2008);
6. attitudes towards recycling (Geng et al., 2013);
7. attitudes towards the homeless (Balas & Sweklej, 2013).

When EC studies have attempted to change existing positive or negative attitudes, the results have been mixed.

For example, a review of the aforementioned EC studies revealed the following:

- positive attitudes were easier to change than negative attitudes;
- mildly positive and mildly negative attitudes were easier to change than strongly positive or strongly negative attitudes; and,
- usually, but not always, EC induced changes in attitudes resulted in changes in behaviors.

The initial goal of the proposed research is to demonstrate that positive Evaluative Conditioning (EC) can be used to increase parents' positive child-related attitudes, decrease negative child-related attitudes, decrease expectations of the need for future discipline.

Note. In seeking a new approach, we sought to develop a method that could be used as an add on to existing parenting education programs and that would reduce potential problems of motivating reasoning, such as confirmation bias and attitude polarization (problems encountered when parent education programs are implemented).
Positive Evaluative Conditioning (EC).

In the present research, EC consisted of presenting a focal point (plus sign) on a computer screen followed by 1 of 3 ambiguous child pictures (CS).

Each picture (CS) was followed by 1 of 3 positive descriptive adjectives (UCSs: sweet, friendly, cooperative) resulting in 9 picture-word pairings. Each of the 9 pairings was presented 20 times for 180 presentations.

Using DirectRT, the focal point presented for 1000 ms and the ambiguous child pictures and positive word descriptors for 20 ms. The 20 ms time was chosen because it is considered out of the viewer’s awareness (Hofmann et al., 2010).

Child picture and positive word descriptor pairings and order of presentation were randomized.

Note. This is the first research to use three conditioned stimuli (CSs).
SWEET

FRIENDLY

COOPERATIVE
Note. No prior research has used EC to change affective attitudes towards children; no prior research has assessed if EC-induced changes in affective attitudes towards children are associated with other child-related cognitions, such as expectations of the need for future child discipline and attributions of hostile intent; and no prior research has assessed whether EC can change parents’ discipline choices and punishment behaviors.

Experiment 1

Because no research has investigated the possibility that EC can change child-related affective attitudes, Experiment 1 was conducted as a proof-of-concept study.

Using a student sample, we sought:

(1) to determine whether positive EC can increase positive child-related attitudes, decrease negative child-related attitudes associated with ambiguous (with respect to valence and intensity of positive/negative features) child pictures; and,

(2) to determine whether positive or negative child-related attitude changes are associated with changes in the expected need for future child discipline.

Experiment 1

With respect to affective attitudes, some authors have proposed that individuals are more responsive to their negative attitudes because negative attitudes have greater salience with respect to dealing with the environment (Baumeister et al., 2001; Rozin et al., 2010).

Some authors also have suggested that unit increases in attitude negativity, compared to unit increases in attitude positivity, are more predictive of behavior (Cacioppo et al., 1997).

Further, according to the SIP model of CPA, negative child-related attitudes are thought to be more strongly related to attributions of hostile intent and aggressive child-directed behaviors than positive child-related attitudes.

Based on these contentions, we hypothesized that EC induced changes in negative, relative to positive, child-related attitudes, would have a stronger association with changes in participants’ estimates of the need for future child discipline.

As a research question, we planned analyses to determine if there were any relationships between participant demographic characteristics and EC outcomes.

Experiment 1

We hypothesized that following EC, relative to pre-EC, there would be an increase in positive evaluations and a decrease in negative evaluations of ambiguous child pictures.

We explored whether the use of a chin rest would increase the strength of the EC effects by increasing the likelihood that participants would attend to the EC stimuli (plus signs, ambiguous child pictures, positive words) presented on the computer screen.

We hypothesized that when using the chin rest, compared to when no chin rest was used, there would be a larger increase in positive evaluations and a larger decrease in negative evaluations of ambiguous child faces following EC.

We hypothesized that following EC, compared to pre-EC, there would be a reduction in expectations that the children depicted in the experiment would need future discipline. This hypothesis was based on research that has shown an association between changes in implicit attitudes and changes in behavioral intentions.

Moreover, we hypothesized that the increases in positive child evaluations and reductions in negative child evaluations would each independently predict reductions in the expected need for future child discipline.

Measurement of positive child-related attitudes, negative child-related attitudes and expected need for future discipline.

Please look at the child shown in this picture and then answer the following questions.

COLOR PICTURE

Do you think this child is:

Not at all-------------------Somewhat-------------------Extremely

Sweet                      1 2 3 4 5 6 7 8 9 10
Friendly                   1 2 3 4 5 6 7 8 9 10
Negative                   1 2 3 4 5 6 7 8 9 10
Hostile                    1 2 3 4 5 6 7 8 9 10
Cooperative                1 2 3 4 5 6 7 8 9 10
Difficult                  1 2 3 4 5 6 7 8 9 10

What is the likelihood that this child will require discipline in the future?

1 2 3 4 5 6 7 8 9 10
Experiment 1
Results
As hypothesized:

When pre-EC positive evaluations (M = 5.98, SD = 1.41) and post-EC positive evaluations (M = 7.72, SD = 1.77) were compared, the difference was significant, F(1, 45) = 69.87, p < .001, η² = .517, indicating higher positive attitudes after EC;

when pre-EC negative evaluations (M = 4.07, SD = 1.50) and post-EC negative evaluations (M = 2.57, SD = 1.41) were compared, the difference was significant, F(1, 45) = 50.63, p < .001, η² = .529, indicating lower negative attitudes after EC; and,

when pre-EC expected need for future discipline (M = 5.31, SD = 1.96) and post-EC expected need for future discipline (M = 3.82, SD = 2.25) were compared, the difference was significant, F(1, 45) = 48.16, p < .001, η² = .517, indicating less expected need for future child discipline after EC.

Experiment 1
Discussion
Experiment 1 demonstrated that positive EC was robustly associated with increases in positive (and decreases in negative) child-related affective attitudes, and decreases in expected need for future discipline.

Limitations
Since students were used, only one of which was a parent, we did not know whether these results would generalize to parents.

There was no assessment of the possibility that demand characteristics contributed to the findings.

Although the EC stimuli were presented for a duration that was thought to be out of awareness, demand characteristics may have contributed to the attitude changes because we used explicit measures (self-reports) of attitudes and expectations. Thus, participants may have provided post-EC responses they thought were expected by the experimenters. If this was the case, demand effects could account for some or even all of the attitude and expectation changes attributed to EC in Experiment 1.
Experiment 2

Purpose: Experiment 2 was conducted to replicate the findings of Experiment 1 using a parent sample. In addition, Experiment 2 addressed the possibility that demand characteristics (measured using the Perceived Awareness of the Research Hypothesis [PARH] scale) may have accounted for some or all of the Experiment 1 results.

Except in two cases, the hypotheses for Experiment 2 were the same as those proposed in Experiment 1.

The first exception was that, consistent with the Experiment 1 results, we no longer expected changes due to the use of the chin rest on any of the outcome measures.

The second exception was that, consistent with the Experiment 1 results, we expected that when increases in positive child-related attitudes and decreases in negative child-related attitudes were considered simultaneously in predicting decreases in the expected need for future child discipline, only decreases in negative child-related attitudes would be associated with decreases in the expected need for child discipline.

As in Experiment 1, we explored the relationships between demographic characteristics and the outcome variables. As a research question, we explored the extent to which demand effects were associated with the study outcomes.

Experiment 2

Results

As hypothesized:

when pre-EC positive evaluations (M = 6.75, SD = 1.57) and post-EC positive evaluations (M = 6.05, SD = 1.95) were compared, the difference was significant, F(1, 46) = 23.75, p < .001, η² = .340, indicating higher positive attitudes after EC;

when pre-EC negative evaluations (M = 2.84, SD = 1.34) and post-EC negative evaluations (M = 2.17, SD = 1.56) were compared, the difference was significant, F(1, 46) = 13.12, p < .001, η² = .222, indicating lower negative attitudes after EC;

when pre-EC expected need for future child discipline (M = 5.23, SD = 2.28) and post-EC expected need for future child discipline (M = 4.55, SD = 2.78) were compared, the difference was significant, F(1, 46) = 9.49, p < .003, η² = .171, indicating less expected need for future child discipline after EC.

The difference between use/non-use of a chin rest and the interaction between use/non-use of a chin rest and pre-post-EC positive evaluations, negative evaluations, and need for future child discipline were not significant (p > .05), indicating the chin rest did not enhance EC effects.

None of the demographic variables (gender, race, age, education, marital status, number of children) were associated with outcomes (p > .05).
Experiment 3

Experiment 3 was conducted to replicate Studies 1 and 2 and to determine if the EC findings generalized to exemplars of the ambiguous child category used in the EC procedure and if EC changes were maintained across time.

Experiment 3 was a Randomized Controlled Trial (RCT), where the EC procedure used in Experiments 1 and 2 served as the treatment condition. The control condition procedures were equivalent to the EC procedure except nonsense letter strings were used in place of the positive word descriptors.

There was a one week post-EC follow-up to examine whether EC effects were maintained across time. Inclusion of a control condition allowed for another test of demand characteristics on study outcomes.

Experiment 3: Randomized Controlled Trial with a one-week follow-up

<table>
<thead>
<tr>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC Condition</td>
<td>CS</td>
<td>Exemplars</td>
</tr>
<tr>
<td>Control Condition</td>
<td>CS</td>
<td>Exemplars</td>
</tr>
</tbody>
</table>

DV’s: Positive child-related attitudes, negative child-related attitudes, and expected need for future child discipline.

Experiment 3: Results

Experiment 3 replicated the findings in Experiments 1 and 2.

EC-induced increases in positive attitudes and decreases in the expected need for future discipline were maintained at follow-up.

For exemplars, there was a significant increase in positive attitudes post-EC; however, this change was not maintained at follow-up.

No attitude or expectation changes (improvements) were found in the control condition.

Expected changes in the EC condition coupled with the lack of similar changes in the control condition provides further support that demand characteristics did not contribute to the observed EC effects.

Experiment 3: Results

Participants were asked to return 7 days after the first session for a follow-up session.

For the treatment group, 41 out of 44 parents (93.2%) completed follow-up assessment.

For the control group, 30 out of 32 parents (93.8%) completed follow-up assessments.
Experiment 3 Results

Research questions.

In the treatment condition, for the ambiguous child stimuli used in the EC procedure, the correlations between demographic variables and the outcome variables were computed. Except for age, which correlated with discipline change for the conditioned child stimuli ($r = .45, p < .05$), none of the correlations were significant ($p$s > .05).

For the exemplars, none of the correlations between the demographic variables and the outcome variables were significant ($p$s > .05).

The results looked good so far, but what about changes in child-related attributions of hostile intent for child behaviors.

The results looked good so far, but can EC-induced changes in child attitudes change child-related attributions of hostile intent for children’s behaviors.

Experiment 4

Experiment 4 examined whether EC could change attributions of hostile intent in a student sample. Except for the addition of a hostile intent measure (the Understanding Children’s Behavior [UCB] scale), the stimuli and measures were the same. The UCB scale measured the extent to which respondents attributed hostile intent to ambiguous child behaviors (where the ambiguous child pictures were the referent child).

The hypotheses for the main outcome variables were the same as those proffered in Experiments 1, 2, and 3. In addition, we hypothesized that when pre-EC and post-EC attributions of hostile intent were compared, there would be a significant decrease in attributions of hostile intent post-EC.
Experiment 4

DRUM ROLL: So what did we find?

Experiment 4 replicated the findings reported in Experiments 1, 2, and 3.

When pre-EC attributions of hostile intent ($M = 4.80$, $SD = 1.48$) and post-EC attributions of hostile intent ($M = 3.81$, $SD = 1.73$) were compared, the difference was significant, $F(1, 34) = 20.21$, $p < .001$, $\eta^2_p = .373$, indicating lower attributions of hostile intent following EC.

Experiment 5

Experiment 5 examined whether EC could change attributions of hostile intent in a sample of parents. The stimuli, measures, and hypotheses were the same as those in Experiment 4.

Experiment 5 replicated the findings previous findings (Experiments 1, 2, 3, 4) with respect to positive child-related attitudes, negative child-related attitudes, and expected need for future child discipline;

and, Experiment 5 replicated the findings of Experiment 4, which found that EC reduces attributions of hostile intent for ambiguous children’s behaviors.

Experiment 6

Purpose

The purpose of Experiment 6 was to conduct a meta-analysis to provide an overall estimate of the EC effect size for changing positive child-related evaluations; the outcome variable that positive EC typically is designed to impact.

Based on inspection of the results of Experiments 1 through 5, the hypotheses were that (1) overall EC would produce a significant increase in positive child-related attitudes; and that (2) the EC effect size would be large.

Inclusion criteria

Data from five independent samples, one from each of the first five experiments described in this presentation, where EC effects on positive evaluations of ambiguous child stimuli were studied, were included in the meta-analysis.

Analytic strategy

A random-effects model was used for the meta-analysis. To estimate the overall weighted mean EC effect size, a standardized mean positive evaluation change score was computed for each of the first five experiments in this article.

Specifically, standardized mean change scores were computed by dividing the change score (i.e., time 2 positive evaluation index score minus time 1 positive evaluation index score) by the standard deviation of the change scores. For each standardized mean change score, we applied Hedges’ (1982) bias-correction for small samples. Attenuation of study ds due to measurement error was corrected by dividing each study $d$ by the square root of the reliability (alpha) of the positive evaluation index. For each experiment, the positive evaluation index alpha was determined by averaging the reliabilities obtained at pre- and post-EC measurements. The standardized mean change score was weighted by the inverse of their respective sampling variances to compute an overall weighted mean change score, $d$. We used $Q$ (Cochran, 1954) to test for heterogeneity among study $d$s. Finally, we calculated a fail-safe $N$; an index of the number of studies required to reduce the overall weighted mean $d$ to a non-significant level (Orwin, 1983).
Experiment 6

Results

As expected, the meta-analysis revealed that EC produced a significant increase in positive evaluations; weighted mean $d = 0.82$, $p < .001$; 95% CI [.64, 1.01], $k = 5$, $N = 220$. The test for heterogeneity in study $d$s was not significant, $Q(4) = 6.18$, $p = .19$, indicating there did not appear to be moderators of the EC effect.

The fail-safe $N$, the number of additional experiments with no significant effect needed to reduce the current $d$ (0.82) to a negligible level ($d = 0.10$), was estimated to be 36 experiments.

Not only did the weighted mean $d$ (.82) generated from the meta-analysis indicate that overall EC produced a significant increase in positive child-related attitudes; but, as hypothesized, the effect size was "large" (using Lipsey’s [1990], description of $d$s less than $d$s greater than 0.56 as "large").

Hofmann et al. (2010) meta-analysis findings for neutral stimuli: Mean EC effect was $d = .52$, 95% CI [.47, .58].

Experiments 7 and 8

Despite finding large effect sizes, Experiments 7 and 8 were conducted to determine if our EC procedure could be enhanced.

In Experiments 1-5, the EC procedure presented EC stimuli for 20 ms, which many authors considered out-of-awareness. However, some contend EC effects are larger when the CS and UCS are presented in awareness (durations > 50 ms).

To test this contention, we conducted Experiment 7 with students, where the EC stimuli were presented for 400 ms. The results replicated the findings of Experiments 1-5 with similar effect sizes on each of the outcomes.

Since some literature suggests the physical size of the UCS in the EC procedure can impact EC results, we conducted Experiment 8 with students where we used the stimuli presentation times used in Experiments 1-5, but enlarged the UCS so that it was similar in size to the CS. Further, since a light blue color has been shown to have a more positive valance than a black color, we changed the UCS (positive words) from black to blue.

Again, we obtained the same conditioning effects as in previous experiments; the EC effects were not enhanced.

Experiments 9, 10, and 11

Purpose

We attempted to increase EC effects by increasing the EC dosage. We conducted Experiment 9 with students and Experiment 10 with parents where the EC procedure used in Experiments 1-5 was presented twice (2 min. apart), and Experiment 11 with parents where the second EC was presented one week later.

In each Experiment, the EC results after the first EC replicated previous findings.

Although there were no significant improvements after the second EC, there were improvement trends.

What we do not know is if repeated EC might produce changes that were better maintained across time or if repeated EC might produce a larger impact on hostile attributions and parenting behaviors because these outcomes were not measured.

Other analyses

Since highly negative attitudes are reported to be more difficult to change than mildly negative attitudes and high-risk individuals have been shown to have more negative child-related attitudes, we sought evidence that our EC procedure was effective in reducing highly negative attitudes.

We assessed the association between initial levels of negative attitudes and EC-induced reductions in child-related negative attitudes. The correlations were:

- $.54$, $p = .001$ (Experiment 1),
- $.28$, $p = .057$ (Experiment 2),
- $.44$, $p = .003$ (Experiment 3),
- $.49$, $p = .003$ (Experiment 4),
- $.56$, $p < .001$ (Experiment 5),

indicating higher initial child-related negative attitudes were associated with larger EC-induced reductions in child-related negative scores.
Experiment 12

Limitations of the studies conducted thus far include the lack of assessments of anger related to attributions of hostile intent for ambiguous child behaviors and the lack of assessments of related harsh parenting behaviors.

Although not an EC study, we conducted Experiment 12 where we used the outcome measures from Experiments 4 and 5 and we added measures of anger, harsh verbal discipline (yell/shout/scream) and harsh physical discipline (slap/hit/spank) and punishment (harm, Voodoo Doll task; McCarthy et al., in press) to pilot test these measures. MTurk was used to survey 247 parents.

As expected, attributions of hostile intent were correlated with feelings of anger ($r = .74$), use of harsh verbal discipline ($r = .67$), use of harsh physical discipline ($r = .45$), and decisions to harm the child ($r = .41$); and, inversely correlated with a “do nothing” discipline item ($r = -.40$).

Also as expected, anger was correlated with harsh verbal discipline ($r = .88$), harsh physical discipline ($r = .76$), decisions to harm the child ($r = .65$), and with a “do nothing” discipline item ($r = -.40$).

Outcome Measures’ Alphas.

Across our studies, mean alphas for the different measures were:

- Evaluation of positive attitudes, $\alpha = .88$
- Evaluation of negative attitudes, $\alpha = .87$
- Expected need for future discipline, $\alpha = .88$
- Attributions of Hostile intent, $\alpha = .94$
- Feelings of Anger, $\alpha = .95$
- Harsh verbal discipline, $\alpha = .95$
- Harsh physical discipline, $\alpha = .98$
- Do nothing, $\alpha = .95$.

Future research (R21 grant proposal)

Experiment 13 dosage study

Cohen’s (1988) descriptions of ds: small = .20; medium = .50; large = .80

Lipsey’s (1990) descriptions of ds: small ≤ .32; medium .33 to .55; large ≥ .56

<table>
<thead>
<tr>
<th>Measure</th>
<th>One EC 48 parents</th>
<th>Two ECs 48 parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive eval</td>
<td>$p = .003$ $d = .42$</td>
<td>$p &lt; .001$ $d = .55$</td>
</tr>
<tr>
<td>Negative eval</td>
<td>$p &lt; .001$ $d = .49$</td>
<td>$p = .006$ $d = .38$</td>
</tr>
<tr>
<td>Hostile intent</td>
<td>$p = .010$ $d = .35$</td>
<td>$p &lt; .001$ $d = .49$</td>
</tr>
<tr>
<td>Anger</td>
<td>$p = .012$ $d = .33$</td>
<td>$p = .008$ $d = .36$</td>
</tr>
<tr>
<td>H Verbal disc</td>
<td>$p = .003$ $d = .41$</td>
<td>$p = .016$ $d = .32$</td>
</tr>
<tr>
<td>H Physical disc</td>
<td>$p = .086$ $d = .20$</td>
<td>$p = .093$ $d = .19$</td>
</tr>
<tr>
<td>Do nothing</td>
<td>$p = .101$ $d = .19$</td>
<td>$p = .017$ $d = .31$</td>
</tr>
<tr>
<td>Harm</td>
<td>$p = .025$ $d = .29$</td>
<td>$p = .030$ $d = .28$</td>
</tr>
</tbody>
</table>

Compare effect sizes to other studies that focused on changing hostile intent.
Experiment 13. Reduction in number of parents harming children pre-, post-EC

One EC, N = 48
n = 13 n = 4 4/13 = 30.8%
Two Ecs, N = 48
n = 12 n = 7 7/12 = 58.7%
Combined, N = 96
n = 25 n = 11 11/25 = 44.0%

Before EC, 25 harmed children; and, after EC, 15 harmed children (40% fewer overall).

Some remaining questions

We have yet to measure parenting behaviors when interacting with a child (in the laboratory or in the home).

We have yet to determine if EC-induced changes generalize to the parent’s own child?

What can be done to answer this question?

What if EC-induced changes do not generalize to the parents’ own child?

Can we design a study to address this issue?

To what extent are harsh/punitive parenting behaviors maintained across Time?

We have yet to measure if EC can produce changes in high-risk and abusive parents.

Questions/Comments?