Three randomized effectiveness trials - one question: Can callous-unemotional traits in children be altered?

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Abstract

Objective: Children with conduct problems and callous-unemotional (CU) traits are at risk for multiple problems. Outcome research and mediation analyses testing for mechanisms of change in CU traits have been limited. We examined whether parent training—in a short-term (Brief Parent Training; BPT) or a comprehensive format (Parent Management Training, Oregon Model; PMTO)—or child-directed social skills training (Individual Social Skills Training; ISST) produced positive effects on CU traits. In mediation models we tested parenting practices as mechanisms of change for CU traits. Method: We pooled data from three randomized effectiveness trials, and a total of 551 families were included in this study. Families had children between 3 and 12 years of age and displayed emerging or present conduct problems at home, day care, or school (BPT *M* age = 7.28 and 31.9% girls; PMTO *M* age = 8.56 and 36.5% girls; ISST *M* age = 7.64 and 19.7% girls). Assessments were completed pre-intervention, post-intervention, and at follow-up (6 months following intervention). Results: Both BPT (*d* = .32) and PMTO (*d* = .39) had positive effects on CU traits at posttest, whereas ISST did not (*d* = -.06). At follow-up, only PMTO produced a significant effect (*d* = .48) on CU traits. A significant indirect effect on CU traits emerged by positive parenting. Conclusions: Both parent training conditions outperformed ISST. Only

PMTO maintained its effects at follow-up. The findings suggest that PMTO can reduce CU traits and that improved positive parenting is associated with positive outcomes for children's CU traits.

Keywords: callous-unemotional traits, effectiveness study, randomized controlled trial, mediation, parent management training, social skills training

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Children with conduct problems are at risk for a broad range of problems, such as engaging in antisocial and delinquent behavior in adolescence and adulthood, abusing substances, and being marginalized from work (Odgers et al., 2008). Fortunately, as synthesized in several meta-analyses (e.g., Michelson, Davenport, Dretzke, Barlow, & Day, 2013), extensive research has shown that evidence-based parent training interventions are effective in reducing child conduct problems. These interventions are typically based on social interaction learning theory (Patterson, 1982) and focus on increasing the positive interactions that parents have with their children through the use of effective teaching strategies (e.g., praise) and helping parents use mild forms of negative consequences (e.g., timeout) for deviant behaviors.

In recent years, scholars have become more aware of a subgroup of children with both conduct problems and callous-unemotional (CU) traits who are characterized by a lack of empathy and guilt, combined with deficient or shallow emotions and callousness toward others (Pardini & Frick, 2013). Three systematic reviews have found that parent training can have positive effects on CU traits (Frick, Ray, Thornton, & Kahn, 2014; Hawes, Price, & Dadds, 2014; Waller, Gardner, & Hyde, 2013). However, few studies, often hampered by relatively small sample sizes, have examined whether child CU traits can be altered through intervention. Therefore, in the present study, we examined whether three different

interventions that were developed to target child conduct problems had positive effects on CU traits. In addition, we tested two potential mechanisms to bring about change in CU traits; positive parenting and harsh discipline. To this end, we conducted mediation analyses where we examined whether outcomes in CU traits were mediated via outcomes in these two parenting practices.

The development of CU traits

In addition to biological vulnerabilities, both positive and negative parenting practices have been acknowledged to influence the development of CU traits in children (Hawes et al., 2014). Additionally, it has been suggested that children with high levels of CU traits typically have poor social skills, which may indicate that successful interventions for children with CU traits may need to directly target those skills (Frick & Dantagnan, 2005).

Evidence of positive intervention effects on CU traits

As noted, a recent review showed that parent training had positive effects on CU traits (Hawes et al., 2014). However, the authors found only 6 studies that examined the effect of parent training on CU traits. Of these, only two included child samples and were conducted with randomized controlled designs. Although limited by a small sample size (N = 66), one of these studies documented that parent training had a large effect on CU traits in a sample of children ages 4 to 9 years (d = .95; McDonald et al., 2011). Similarly, Somech and Elizur (2012) found a decrease in CU traits after a parenting program for parents with children ages 3 to 5 years at risk of CP (d = .85). Although these findings suggest that CU traits may be altered through parent training, thus far, the outcome research on CU traits has been limited.

One may suspect that extensive parent training interventions would produce larger effects on CU traits than briefer interventions. The abovementioned study by McDonald et al. (2011) showed that a 20-session intervention in which parents were trained on parent behavior management skills and provided with emotional and instrumental support produced large effects on CU traits.

We were not able to find any randomized trial that examined the effectiveness of child-directed social skills training on CU traits. As noted, children with CU traits have been found to have poor social skills (Frick & Dantagnan, 2005) and deficits related to emotion regulation and empathy. Therefore, social skills training may have the potential to reduce CU traits. Thus, we included a sample of children who received only individual social skills training (ISST). This intervention has been shown to have limited effects on child conduct problems (Kjøbli & Ogden, 2014). However, since CU traits and conduct problems may be differentially affected by the intervention, we wanted to examine whether ISST produced positive effects on CU traits.

The current study

The few randomized trials that examine interventions' effectiveness on CU traits show a great need for more research (Hawes et al., 2014). Consequently, we conducted secondary analyses to explore whether three interventions produced positive effects on CU traits. Also, because tests of mechanisms of change in CU traits have been particularly limited in the literature (e.g., McDonald et al., 2011), we examined whether positive parenting and harsh discipline served as mediators of change in CU traits following intervention. Yet, while doing this, we acknowledge that our study was not designed, and hence not statistically powered, to conduct these tests.

The interventions' effects on conduct problems have been evaluated in previous publications. Two of the interventions included in this study were evidence-based parent training interventions—Brief Parent Training (BPT; Kjøbli & Bjørnebekk, 2013; Kjøbli & Ogden, 2012) and PMTO (Kjøbli et al., 2013)—and one was child-directed social skills training, ISST (Kjøbli & Ogden, 2014). The findings from the previous effectiveness studies have showed that PMTO and BPT were effective in reducing harsh discipline and in increasing positive parenting. On the basis of that research, we investigated positive parenting and harsh discipline as mediators of change in this study.

The use of three different trials allowed us to hypothesize the following:

1. That parent training, either in a short-term (BPT) or comprehensive format (PMTO), or child-directed social skills training (ISST) would produce positive effects on CU traits.
2. That comprehensive PMTO would produce larger effect sizes than short-term BPT.
3. That parent training would produce larger effect sizes than ISST.
4. That long term (6 months after the intervention) outcomes in CU traits were mediated by immediate outcomes in positive parenting and harsh discipline.

Method

The three studies were pretest, posttest and follow-up (6 months after the intervention) parallel-group randomized trials with a 50:50 allocation ratio between the intervention and the comparison groups. In all samples, the children were the units of analyses.

Participants

In total, 551 families were included in the present study. For each study's participant flowchart, see Kjøbli et al. (2013), Kjøbli and Ogden (2012) and Kjøbli and Ogden (2014). The families were recruited from all five health regions in Norway, and had children who were between 3 and 12 years of age and displayed emerging or present problem behaviors at home, day care, or school. In all samples, children were excluded from participation if they were diagnosed with autism, had been exposed to documented sexual assaults, were intellectually disabled, or had parents with serious mental health problems or a severe intellectual disability.

Sample 1: Brief Parent Training (BPT). Two hundred and sixteen families participated in this study (Kjøbli & Bjørnebekk, 2013). The children's ages ranged from 3 to 12 years at intake (M = 7.28, SD = 2.61), and 69 (31.9%) were girls. The average age of the reporting parents was 35.31 years (SD = 6.08). One hundred and ten children (50.9%) lived with both biological parents, 27 (12.5%) lived with parents who were married or cohabiting

with another adult, and 79 (36.6%) lived with single parents. The average gross annual family income was 539,107 Norwegian kroner (*SD* = 328,293), which is approximately $88,815 and represents an upper-middle income level. According to self-reports, 85 of the parents (39.4%) had a college or higher university degree, 114 (52.8%) had completed high school, and 17 (7.9%) had completed junior high school or elementary school. Most parents had a Norwegian background (202 or 93.5%), four (1.9%) were from other western European countries, and the remaining 10 (4.6%) reported an "other" ethnicity.

Sample 2: PMTO Parent Group (PMTO). One hundred and thirty-seven families participated in this study (Kjøbli et al., 2013). The children were between the ages of 3 and 12 years (*M* = 8.56, *SD* = 2.35), and 50 (36.5%) were girls. The average age of the reporting parent was 37.42 years (*SD* = 6.34). Among the participating children, 66 (48.2%) lived with both biological parents, 21 (15.3%) lived with parents who were married or cohabiting with another adult, and 50 (36.5%) lived with single parents (divorced, separated, or never married). The average gross annual family income was 509,609 Norwegian kroner (*SD* = 347,701), which is approximately $83,542 and represents a middle income level. According to parent self-reports, 37 (27%) had a college or higher university degree, 83 (60.6%) had completed high school, and 17 (12.4%) had completed junior high school or elementary school. Most parents had a Norwegian background (126 or 92%), one (0.7%) was from another western European country, and 8 (7.3%) reported an "other" ethnicity.

Sample 3: Individual Social Skills Training (ISST). One hundred and ninety-eight families enrolled in this study (Kjøbli & Ogden, 2014). The ages of the 198 children in this study ranged from 3 to 12 years at intake (*M* = 7.64, *SD* = 2.19), and 39 (19.7%) were girls. The average age of the reporting parent was 36.30 years (*SD* = 6.07). Among the participating children, 106 (53.5%) lived with both biological parents, 29 (14.6%) lived with parents who were married or cohabiting with another adult, and 63 (31.8%) lived with single parents (divorced, separated, or never married). The average family income was 564,088 Norwegian

kroner (*SD* = 267,049), which is approximately $96,756 and represents an upper-middle income level. According to parent self-reports, 80 (40%) had a college or higher university degree, 96 (48.5%) had completed high school, and 22 (11.1%) had completed junior high school or elementary school. Most parents reported having a Norwegian background (182, or 92%), two (1%) were from another western European country, and 14 (7.1%) reported an "other" ethnicity.

Procedures

The Regional Committee for Medical Research Ethics approved the three studies. The eligible families agreed to participate by signing a written informed consent document. The assessment sessions were administered by research staff members who were employed and trained for the purposes of collecting data for this study.

Interventions

The three interventions examined in the present study are all manual and principle-based and part of the program Early Initiatives for Children at Risk, which was developed to scale up the use of evidence-based interventions for child conduct problems in Norway (Solholm, Kjøbli, & Christiansen, 2013). Below, we provide brief outlines of each intervention in the current study.

BPT. This intervention is individually delivered to families with the aim of reducing and preventing child conduct problems. The intervention is designed to last for 3-5 one-hour weekly sessions and parents are encouraged to learn and role-play the following parenting skills: positive involvement, skills encouragement, problem solving, discipline, and monitoring. In the present study, BPT lasted 5 h, on average.

PMTO. Similar to BPT, the aim of PMTO is to promote effective parenting skills to reduce and prevent child conduct problems. PMTO is more comprehensive and aimed at children with more serious behavior problems than BPT, consisting of 12 weekly sessions that

last 2.5 h (30 h in total). The intervention is delivered to groups of families, with a maximum number of 16 participants (the caregivers of eight children) in each group.

ISST. This intervention is an individually delivered intervention (8-10 sessions) for children with emerging or existing conduct problems. The aims of ISST are to lower the reinforcement of antisocial strategies and contact with deviant peers and to reinforce the use of prosocial skills. All children who receive the intervention are taught to stop, think and develop socially appropriate plans before they act in order to cope with anger and to reduce aggressive and negative behaviors. Throughout the intervention, children are encouraged to learn and role-play emotion regulation, problem solving skills and anger management skills.

Mediators: Parenting practices

Harsh discipline and positive parenting were assessed with Parent Practices Interview, a widely used instrument that has previously been translated and used in several randomized trials in Norway (e.g., Kjøbli & Ogden, 2012). Positive parenting was assessed with 15 items (7-point Likert scale) about parental sensitivity and responsiveness to the child, such as praise, rewards and positive physical contact. Higher scores indicate more positive practices. Alpha reliability was .74, and .77. at pre/post, respectively. Harsh discipline was assessed with 14 items (7-point Likert scale) about negative responses to perceived problematic behaviors of the child. Items included threatening with punishment, spanking and hitting. Higher scores indicate greater use of harsh discipline. Alpha reliability for the scale was .86, and .88 at pre/post, respectively.

Child outcome measure

CU traits were measured with a selection of 15 parent reported items from Merrell's behavior scales (Merrell, Streeter, Boelter, Caldarella, & Gentry, 2001), reflecting three of four CU dimensions described by the DSM-V: "lack of guilt", "callous lack of empathy", and "unconcerned about performance". We found no items that reflected the dimension "shallow or deficient affect". Several key articles on CU rely on item selections from broader scales

that measure behavior problems (e.g., Hawes & Dadds, 2007; Hyde et al., 2013), a strategy that we adapted for the present study. Note that item selections in previous studies include fewer items and primarily cover two of the DSM subscales (e.g., Hawes & Dadds, 2007; Hyde et al., 2013). The CU subscales and the items that measure them are listed in Table 1. We constructed a measurement model of a single, unidimensional, latent CU construct. To maintain an adequate model size to sample size ratio, we included the sum scores of the items related to each of the three CU dimensions described above (sum scores used as indicators in conducted confirmatory factor analyses, CFAs, are often referred to as parcels), after ensuring that each parcel was unidimensional and without cross-loadings across parcels in a three-factor model (Little, Rhemtulla, Gibson, & Schoemann, 2013). Alpha reliability for the three subscales were .77/.77/.81, .79/.83/.79, and .78/.83/.83 at pre/post/follow-up, respectively. The factor loadings for the individual CU items (at pretest) are presented in Table 1. Moreover, to examine whether the parcels were consistent across time points, we tested the measurement invariance of the three-factor model of the CU dimensions, as recommended by Little et al. (2013). We found some evidence for invariance when fixing factor loadings and intercepts but less so when also fixing residuals (although the model fit remained acceptable); see the lower section of Table 1 for the summary of fit statistics. A one-dimensional CU factor model including all items was initially rejected due to poor fit statistics.

Child conduct problems were measured with a 20-item version of the Eyberg Child Behavior Inventory (ECBI; Burns & Patterson, 2000). To ensure a unidimensional measure, we performed CFAs that revealed that a three-factor solution (including the opposition, inattentiveness, and conduct problems subscales as parcels) of the 20-item solution provided an acceptable overall model fit based on multiple fit indices, χ^2 (165) = 615.4, $p < .000$, the root mean square error of approximation (RMSEA) = .071, comparative fit index (CFI) = .918, with correlated errors for three item-pairs (“gets angry” and “has tantrums”, “has tantrums” and “yells”, and “steals” and “lies”). Alpha reliability for the three subscales

was .89/.89/.90, .92/.92/.94, and .76/.73/.73 across pre/post/follow-up, respectively. Given the uni-dimensionality of the Eyberg measure, we included a sum score of the three parcels as a measure of behavior problems in our analyses.

Analytic procedures

The main study hypotheses were examined with structural equation modeling (SEM) in Mplus 7. We ran regression models in intent-to-treat (ITT) analyses to examine intervention effects. The ITTs included all cases of participation at post-assessment or follow-up assessment. The magnitude of the outcomes was estimated by calculating effect sizes (Cohen's *d*).

In additional models, we included ECBI intensity to examine whether findings changed when this measure of conduct problems was included in parallel with CU traits. Thus, we were able to correlate the outcomes of CU traits with the outcomes of conduct problems at posttest and follow-up, thereby partialling out the common variance between the two constructs. By controlling for conduct problems, we increased the likelihood that any observed effect was a result of a true effect on CU traits and not a result of the construct's overlap with conduct problems (Hawes et al., 2014).

In the mediation model, we included the following variables: intervention allocation, both mediators (positive parenting and harsh discipline) at posttest (controlling for pretest), and CU traits at follow-up (controlling for pretest). By running this model, we were able to test the specific indirect effects of the two mediators (posttest outcomes in positive parenting and harsh discipline). In order to examine whether the indirect effect differed between CU traits and conduct problems, we ran additional models with conduct problems (ECBI intensity) as the outcome. Because the positive parenting variable was not normally distributed, the mediation models were investigated with robust estimation techniques (maximum likelihood estimation with robust standard errors; MLR); this prevented us from

using the bias-corrected bootstrap method when estimating the confidence intervals for the tests for indirect effects in Mplus.

Results

Attrition

As described elsewhere, attrition was low in all three trials. Of the 551 families that participated in one of the trials at the pretest, 499 (90.6%) participated in the posttest and 456 (82.8%) participated in the follow-up assessment. When comparing the attrition group with the completers in each trial, few differences in intake characteristics emerged (see Kjøbli & Bjørnebekk, 2013; Kjøbli et al., 2013; Kjøbli & Ogden, 2014). We modeled the data with full-information maximum likelihood (FIML) to accommodate missing data (Graham, 2009).

Baseline comparisons

To test for differences between the intervention and the comparison groups at pretest, and thereby to test the randomization procedure, we compared the two groups of completers in each of the trials on demographic characteristics and outcome variables. Only one difference emerged in the BPT sample, and no significant differences emerged in the PMTO sample or the ISST sample (see Kjøbli & Bjørnebekk, 2013; Kjøbli et al., 2013; Kjøbli & Ogden, 2014).

With regard to CU traits at baseline, the BPT and ISST groups were not significantly different (Cohen's d = -.063, p=.279). The PMTO group had higher baseline levels of CU than the BPT group (Cohen's d = .17, p=.009), and the ISST group (Cohen's d = .23, p=.000). Likewise, there were baseline differences with regard to conduct problems. While the BPT and ISST groups were not significantly different (Cohen's d = .03, p=.737), the PMTO groups had higher levels than both the BPT group (Cohen's d = .18, p=.000) and the ISST group (Cohen's d = .20, p=.000).

Table 1 about here

Intervention effects

To test for intervention effects, we ran regression models that included all samples using the ITT approach. More specifically, we first tested a model with all samples in which intervention allocation predicted CU traits at posttest when controlling for CU traits at pretest. Second, we tested the same model using follow-up data instead of posttest data.

Effects at posttest. The path from intervention allocation to CU traits at posttest was significant, with an effect size (*d*) of .20, which shows that the average intervention effect was positive at posttest. The results are shown in the upper row of Table 2. We then separated the dataset into the three study samples and, again, tested whether the paths from intervention allocation to CU traits were significant. In the BPT and the PMTO samples, we found that the paths from intervention allocation to CU traits were significant, with effect sizes (*d*) of .32 and .39, respectively, which show that random assignment to both BPT and PMTO was associated with positive outcomes relative to the comparison groups. This path was nonsignificant in the ISST sample, with an effect size (*d*) of -.06. See the lower rows of Table 2 for details.

Effects at follow-up. The path from intervention allocation to CU traits at follow-up was significant, with an effect size (*d*) of .24, which shows that the average intervention effect was positive at follow-up (see Table 2 for details). When we separated the data into the three study samples, we found that the path from intervention allocation to CU traits was significant only in the PMTO sample, with an effect size (*d*) of .48, whereas the paths were nonsignificant in the BPT and the ISST samples, with effect sizes (*d*) of .17 and .15, respectively.

Table 2 about here

Our next step was to simultaneously model the treatment effects for conduct problems and CU. It is notable that the correlations between the latent CU factor and the conduct problems sum score were high across time points (.89/.87/.85 for pre/post/follow up), while correlations between the observed subscales for each construct was lower (ranging from .24

to .70). In these models, the two outcomes were allowed to correlate, to account for the high correlation between constructs. As shown in Table 3, the effects of treatment on CU traits were substantively identical when simultaneous treatment effects were examined.

Table 3 about here

Indirect effects

The mediation model which included intervention allocation, both mediators at posttest, and CU traits at follow-up provided an acceptable model fit based on multiple fit indices, $\chi 2$ (35) = 87.37, $p < .01$, RMSEA = .052, CFI = .97. When including all three samples, the indirect effects on CU traits by positive parenting was significant ($\gamma = .02$, $p < .05$), while it was not by harsh discipline ($\gamma = .01$, ns). The direct path from intervention allocation to CU traits was significant ($\beta = .08$, $p < .05$) when the mediators were included in the model, thus suggesting partial mediation. When we tested the mediation model separately in the samples, none of the indirect effects were significant, although all parameters pointed in the expected direction (not shown).

Finally, we ran the same mediation model with conduct problems (ECBI intensity) as the outcome variable. The model provided an acceptable model fit; $\chi 2$ (10) = 44.49, $p < .01$, RMSEA = .079, CFI = .95. Findings showed, in contrast to the model with CU traits as the outcome, that the indirect effect on conduct problems by harsh discipline was significant ($\gamma = .02$, $p < .01$) while it was not by positive parenting ($\gamma = .01$, *ns*).

Discussion

We hypothesized that parent training—in either a short-term (BPT) or a comprehensive format (PMTO)—or child-directed social skills training (ISST) would produce positive effects on CU traits. Our findings showed that both BPT ($d = .32$) and PMTO ($d = .39$) had positive effects on CU traits at posttest, while ISST did not (d = -.06). When we examined these effects 6 months after posttest, we found that only PMTO produced a positive and significant effect ($d = .48$) on CU traits. Secondly, we hypothesized that a comprehensive

parent training intervention (PMTO) would produce larger effect sizes than short-term parent training (BPT). Both at posttest and at follow-up, we obtained larger effects in the PMTO sample than in the BPT sample. Third, we hypothesized that the parent training interventions would produce larger effect sizes than ISST. Both at posttest and at follow-up, the findings showed that ISST had a nonsignificant effect on CU traits. In the PMTO and the BPT sample, we found significant and small to moderate effects at posttest, indicating that parent training, regardless of the comprehensiveness of the format, produced larger effects than ISST at posttest. At follow-up, only PMTO produced significant effects on CU traits, indicating that only comprehensive parent training, in contrast to BPT and ISST, had sustainable effects on CU traits. Forth and finally, we hypothesized that long term outcomes in CU traits were mediated by immediate outcomes in positive parenting and harsh discipline. Our mediation analyses only partially supported this hypothesis, as the results showed that the indirect effect on CU traits by positive parenting was significant while it was not by harsh discipline.

The effect sizes for BPT and PMTO in the current study were generally somewhat smaller than those reported by McDonald et al. (2011; ES of .95), and Somech and Elizur (2012; ES of .85). Thus, the current findings indicate that the magnitude of the effect sizes may be somewhat smaller than previously found.

Our findings suggest that full-scale PMTO generally produced larger effects on CU traits than did BPT. This result is in line with findings that show that extensive parent training interventions have beneficial effects on CU traits (McDonald et al., 2011; Somech & Elizur, 2012). It is, however, interesting that BPT produced a significant effect on CU traits at posttest. This may indicate that brief parent training can be beneficial given that booster sessions are offered to families after intervention termination to ensure sustained effects.

In general, the parent training interventions produced larger effect sizes than ISST. The nonsignificant effects of ISST suggest that it is not sufficient to address children's social skills alone to reduce CU traits. Also, ISST may be missing vital components to bring about

change in CU traits. In ISST, children are taught strategies to stop, think and develop socially appropriate plans before they act in order to cope with anger and to reduce aggressive and negative behaviors. These might not be the skills needed to change CU traits. Rather, as Hawes et al. (2014) have suggested, the promotion of shared eye contact between parents and children may help reduce CU traits.

The mediation analyses suggest that the effects of PMTO and BPT are partially mediated by positive parenting (e.g., praise and responsiveness). This finding supports previous research that suggests that positive parenting practices influence levels of CU traits in children (e.g., Hawes et al., 2014). The finding that CU traits were only partially mediated by outcomes in positive parenting may suggest that other parenting practices addressed in PMTO and BPT (e.g., monitoring and problem solving) not included in the current analyses could serve as additional mediators.

The current study possesses both strengths and weaknesses. An advantage of this study is that it includes three randomized effectiveness trials. However, in this study, we not only examined the interventions' effectiveness with a comparison group; we also compared the effect sizes between the studies. This may have biased the findings. For instance, the level of child problems at intake and the level of intervention received in the comparison groups may have influenced the effect sizes. Another concern is the generalizability of the findings. There is reason to believe that the findings are high in external validity as the studies were conducted in regular practices in Norway. However, since the Norwegian context is different from other contexts (e.g., annual income is higher than in the US and UK), replications are needed. Also, although the sample provided adequate power to test for intervention effects, the power was not ideal for testing the impact of potential mediators (e.g., parenting practices). Future studies should therefore include samples that are large enough for testing mediators.

In future studies, it would be valuable to compare the current parent reported CU trait measure with teacher reports and direct observations. Also, the current study is, like many of its forerunners, limited by relying on a CU trait measure where items were selected from a broader behavior scale.

Practical significance of findings

The findings support previous research that suggests that parent training is the treatment of choice for reducing CU traits (Hawes et al., 2014). Nevertheless, because larger effect sizes can most likely be achieved, further research is needed to optimize interventions aimed at reducing child CU traits.

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Table 1. Factor loadings at pretest and fit indices for the CU trait measure

Item label	Factor loading (T1)
Lack of guilt	
Blames others for his/her problems	.514
Cheats on schoolwork or in games	.555
Is dishonest; tells lies	.826
Is not dependable	.681
Takes things that are not his/hers	.509
Is disrespectful	.569
Callous lack of empathy	
Disregards feelings or needs of others	.518
Understands problems and needs of peers (r)	.772
Is sensitive to the feelings of others (r)	.686
Notices and compliments accomplishments of others (r)	.664
Offers help to peers when needed (r)	.692
Unconcerned about performance	
Produces work of acceptable quality for his/her ability level (r)	.577
Completes chores or other assigned tasks independently (r)	.809
Completes chores or other assigned tasks on time (r)	.811
Completes chores without being reminded (r)	.594

	Model fit indexes			
Model	Chisq	df	RMSEA	CFI
T1	227.767	87	.054	.936
T1, T2, T3 free loadings	1461.621	864	.035	.945
Fixed loadings	1481.970	888	.035	.945
+ fixed intercepts	1697.936	918	.039	.928
+ fixed residuals	962.466	948	.044	.907

Note: r = reversed item.

There were no correlated errors in the model.

Table 2. Cohen's d's and 95% confidence intervals at posttest and follow-up on CU traits

Study	*Posttest*		*Follow-up*	
	Cohen's d	*95% CI*	*Cohen's d*	*95% CI*
AIE[a]	.20	.06-.34	.24	.08-.39
BPT	.32	.09-.56	.17	-.09-.43
PMTO	.39	.12-.67	.48	.15-.81
ISST	-.06	-.28-.16	.15	-.11-.40

Note: [a]AIE = Average Intervention Effect

Table 3. Cohen's d's and 95% confidence intervals at posttest and follow-up on CU traits controlling for change in conduct problems

Study	*Posttest*		*Follow-up*	
	Cohen's d	*95% CI*	*Cohen's d*	*95% CI*
AIE[a]	.19	.05-.34	.26	.09-.43
BPT	.33	.07-.59	.18	-.10-.45
PMTO	.40	.11-.69	.52	.19-.85
ISST	-.08	-.30-.15	.16	-.11-.43

Note: [a]AIE = Average Intervention Effect