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Does Caregivers' Use of Praise Reduce Children's Externalizing Behavior? A Longitudinal Observational Test in the Context of a Parenting Program

Joyce Weeland¹, Eddie Brummelman², Sara R. Jaffee³, Rabia R. Chhangur⁴, Danielle van der Giessen²,
Walter Matthys⁵, Bram Orobio de Castro², and Geertjan Overbeek²

¹ Youth and Family, Department of Psychology, Education and Child Studies, Erasmus School of Social and Behavioural Sciences, Erasmus University Rotterdam

² Research Institute of Child Development and Education, Faculty of Social and Behavioural Sciences, University of Amsterdam

³ Department of Psychology, School of Arts and Sciences, University of Pennsylvania

⁴ Department of Developmental Psychology, Tilburg School of Social and Behavioral Sciences, Tilburg University

⁵ Department of Clinical Child and Family Studies, Faculty of Social Sciences, Utrecht University

Caregivers are often encouraged to praise children to reduce externalizing behavior. Although several theoretical perspectives suggest that praise works (e.g., praise reinforces positive behavior), others suggest it may not (e.g., children dismiss praise or experience it as controlling). This longitudinal-observational study examined whether (a) caregivers' praise and children's externalizing behavior were related; (b) an evidence-based parenting program increased caregivers' praise; (c) and increasing praise reduced children's externalizing behavior. Participants (387 caregiver-child dyads) were randomly assigned to a 14-session parenting program (aiming to improve parenting behavior, partly via praise) or a control group. Children (aged 4–8 years, 45% girls) scored at or above the 75th percentile on externalizing behavior problems. Caregivers (91% Caucasian, 85% born in the Netherlands, 50.5% highly educated) were mostly mothers (91%). At baseline, postintervention, and follow-up, we assessed caregivers' labeled and unlabeled praise via in-home observations, and children's externalizing behavior via caregiver-reports and observations. At baseline, caregivers' unlabeled praise was related to more (rather than less) externalizing behavior. The parenting program successfully increased praise and reduced caregiver-reported (but not observed) externalizing behavior; importantly, however, praise did not mediate the program's effect on caregiver-reported externalizing behavior. Although the program did not directly reduce observed externalizing behavior, it did so indirectly via labeled praise. Our results suggest that, although praise and externalizing child behavior are related, praise may not be a key mechanism underlying the effects of the parenting program. If praise has beneficial effects on children's externalizing behavior, these effects are probably limited to labeled praise.

Keywords: externalizing behavior, labeled praise, parenting training, praise, randomized controlled trial

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Joyce Weeland  <https://orcid.org/0000-0003-2389-5110>

Eddie Brummelman  <https://orcid.org/0000-0001-7695-5135>

Sara R. Jaffee  <https://orcid.org/0000-0002-9728-4630>

Danielle van der Giessen  <https://orcid.org/0000-0002-8445-3204>

Bram Orobio de Castro  <https://orcid.org/0000-0001-5110-6153>

The randomized controlled trial was preregistered with the Dutch Trial Register (NL3443) and methods are available in a protocol paper (see Chhangur et al., 2012). Data and study materials are available upon request (contact g.overbeek@uva.nl). Analysis code is available upon request (contact: weeland@essb.eur.nl).

Joyce Weeland, Rabia R. Chhangur, Geertjan Overbeek, Walter Matthys, and Bram Orobio de Castro contributed to the study design. Data collection was performed by Joyce Weeland, Rabia R. Chhangur, and Danielle van der Giessen. Joyce Weeland (under supervision of Sara R. Jaffee and Geertjan Overbeek) and Eddie Brummelman developed the article concept and drafted the article. Joyce Weeland performed the data

analyses. Sara R. Jaffee, Geertjan Overbeek, Walter Matthys, Danielle van der Giessen, and Bram Orobio de Castro provided critical revisions. All authors approved the final version of the article for submission.

Joyce Weeland, Geertjan Overbeek, Rabia R. Chhangur, and Walter Matthys are Incredible Years group leaders. None of the authors have a financial interest in the Incredible Years programs. The authors declare that they have no other conflict of interest.

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Correspondence concerning this article should be addressed to Joyce Weeland, Youth and Family, Department of Psychology, Education and Child Studies, Erasmus School of Social and Behavioural Sciences, Erasmus University Rotterdam, Burgemeester Oudlaan 50, 3062 PA, Rotterdam, the Netherlands. Email: weeland@essb.eur.nl

Praise refers to positive evaluations of a child's traits, actions, or products (Kanouse et al., 1981) and is one of the most used parenting behaviors to influence children's behavior (Brummelman, 2018). In Western culture, caregivers are often encouraged to praise children to reduce their externalizing behavior (Marchant et al., 2004; Roberts, 1985; Webster-Stratton et al., 2011). This encouragement seems most needed for caregivers of children at risk for or with externalizing behavior problems because these caregivers tend to praise their children infrequently and may even resort to criticism (Swenson et al., 2016). Unsurprisingly, praise is a component of most, if not all, parenting programs targeting externalizing behavior (Furlong et al., 2013; Leijten, Gardner, Melendez-Torres, et al., 2018; Mouton et al., 2018). Meta-analytic evidence indicates that programs that target caregivers' praise are generally effective in reducing children's externalizing behavior (Leijten, Gardner, Landau, et al., 2018). Although promising, these findings do not show that praise is indeed a mechanism of change underlying parenting program effects on child behavior. There is little direct evidence that praise itself lead to changes in children's externalizing behavior (Owen et al., 2012). Here, we sought to provide such evidence.

The current longitudinal observational study examined (a) how caregivers' praise and children's externalizing behavior are related; (b) whether an evidence-based parenting program increased caregivers' praise; (c) and whether increasing praise via this program reduces children's externalizing behavior. From an applied perspective, identifying the effectiveness of parenting advice is critical, as this aids clinical practice and the design of effective prevention and intervention programs (Forehand et al., 2014). From a theoretical perspective, our study speaks to different, and often contradictory, theoretical perspectives on the effectiveness of praise (Lee et al., 2016; Soenens & Vandesteenkiste, 2020).

Why Praise May Be Effective

Many parenting programs are built on the principles of operant conditioning. Caregivers are encouraged to positively reinforce appropriate behaviors that are the "positive opposite" of the externalizing behaviors they want to reduce (Kazdin, 1981). If praise acts as a reinforcer, it should increase the frequency of the behavior upon which it is contingent. Thus, when caregivers praise behaviors that are the positive opposite of inappropriate behaviors (e.g., praising compliance as the opposite of noncompliance or praising staying calm as the opposite of a temper tantrum), children should display this appropriate behavior more often, replacing the inappropriate behavior. This operant conditioning perspective implies that praise should be more effective in reducing externalizing behavior when it specifies which exact behaviors are being praised. Accordingly, research has distinguished *labeled praise*, which labels what is being praised (e.g., "Great job sharing your toy with your brother!"), from *unlabeled praise*, which does not (e.g., "Great job!"); Bernhardt & Forehand, 1975; Chalk & Bizo, 2004; Leijten et al., 2016). When children receive labeled (vs. unlabeled) praise, they may be better able to identify the behavior that is being praised, which is thought to increase the likelihood that the praise reinforces this behavior. However, to date, the effects of labeled praise have not been evaluated in longitudinal designs within an

intervention context (but for experimental evidence, see Bernhardt & Forehand, 1975; Leijten et al., 2016).

Another, complementary reason why praise can be effective in changing children's behavior is that praise is an element of positive parenting behavior, which is assumed to create a loving and supportive environment (Webster-Stratton & Hammond, 1997). As families of children with externalizing behavior are often characterized by negative or even coercive caregiver-child interactions, encouraging caregivers to use more praise may improve caregiver-child interactions and, consequently, reduce the child's externalizing behavior (Akcinar & Shaw, 2018; Blumenfeld et al., 1982; Trentacosta et al., 2008).

Why Praise May Not Be Effective

Praise may not always be effective, however. According to self-determination theory (Ryan & Deci, 2017), the effects of praise depend on how children interpret the praise. When children interpret praise as evaluative, they may feel controlled by the praise (Soenens & Vandesteenkiste, 2020). For example, when they are praised for complying with their caregivers' requests, they may feel pressured by the praise to behave in particular ways, which may reduce their intrinsic desire to be compliant. After the age of three years, children start to acquire the cognitive control processes to regulate their behavior and regulation starts to shift from external to more autonomous regulation (Kochanska et al., 2001). Parenting strategies that support this autonomy have been shown to increase compliance in children aged 3.5 years, whereas controlling strategies decreased their compliance over time (Laurin & Joussemet, 2017).

Children with externalizing behavior may be especially likely to interpret praise as evaluative. Because they are often criticized and rarely praised (Henricsson & Rydell, 2004; Pasalich et al., 2011; Swenson et al., 2016), they may perceive the praise as insincere (e.g., "You do not really think that") or controlling (for example, "You're just saying that to make me stop"; see Brummelman et al., 2016). Indeed, some children may even respond to such perceived pressure with defiance (Van Petegem et al., 2015). Consequently, praise may fail to reduce children's externalizing behavior (also see Rudy & Grusec, 2020; Warneken & Tomasello, 2008). Although this perspective has not been tested directly, research suggests that children with externalizing behavior problems tend to respond to praise with more hostile and surprised emotions than do children without such problems (Casey & Schlosser, 1994).

Present Research

Our study asks: Does caregivers' praise help reduce children's externalizing behavior? We conducted a longitudinal-observational study ($N = 387$ caregiver-child dyads) in the context of a parenting program to address this question. Our study focused on children aged 4–8 years, a critical age when children's self-regulatory skills start to develop and externalizing behavior tends to emerge (Olson et al., 2017; Sentse et al., 2017; Wachs et al., 2014). Children and their caregivers were randomly assigned to an evidence-based parenting program, Incredible Years, which sought to reduce children's externalizing behavior, in part, by increasing caregivers' praise (Webster-Stratton, 2001; Webster-Stratton &

Bywater, 2018), or to a no-intervention control group. At baseline, postintervention, and 3- to 4-month follow-up, we assessed caregivers' praise via observations of caregiver-child interactions and children's externalizing behavior via behavioral observations and caregiver reports. In addressing our research question, we focused on both between- and within-family differences because differences between families may not directly be translated to processes within families (Keijsers et al., 2016; Rekker et al., 2017).

First, we examined whether praise and children's externalizing behavior were related within a naturalistic caregiver-child interaction. If the frequency of caregivers' praise and the severity of children's externalizing behavior is negatively related, there is good reason to assume that increased praise will result in reduced externalizing behavior in children. Second, we examined whether an evidence-based parenting program succeeded in increasing caregivers use of praise and reducing children's externalizing behavior over time. Praise is an important part of curriculum of most, if not all, parenting programs (Kazdin, 2005; McCart et al., 2006). Third, we examined whether changes in caregivers' praise after participation in the program mediated parenting program effects on children's externalizing behavior. If such mediation exists, it provides evidence that caregivers' praise contributed to reduced externalizing behavior. In each of these steps, we separated labeled from unlabeled praise. If labeled praise is indeed more effective at reducing externalizing behavior than is unlabeled praise, this would provide real-world evidence for operant conditioning principles in the effects of praise on child behavior (Bernhardt & Forehand, 1975).

Method

Participants

Families with children aged 4–8 years were recruited through two Dutch regional health care organizations. Caregivers completed the Eyberg Child Behavior Inventory, which indexes children's externalizing behavior (Eyberg & Pincus, 1999). If the child scored at or above the 75th percentile, families were invited to participate in the *Observational Randomized controlled trial of Childhood Differential Susceptibility (ORCHIDS)* study (see for the research protocol Chhangur et al., 2012). Families were excluded if caregiver or child had an intellectual disability, or the caregiver did not master the Dutch language. In total, 387 children and one of their caregivers participated. Children (45% girls) were aged 4–8 years at baseline ($M = 6.31$, $SD = 1.33$; 97.4% born in the Netherlands). Caregivers (91% mothers) were aged 23–51 years at baseline ($M = 38.10$, $SD = 4.84$; 90.5% Caucasian; 85% born in the Netherlands), and about half of them (50.50%) obtained higher vocational training or university degrees. The ORCHIDS study was preregistered with the Dutch trial Register (NTR3594) and in a protocol paper (see Chhangur et al., 2012). Data and study materials are available upon request. The study was carried out in accordance with the provisions of the World Medical Association Declaration of Helsinki and approved by the Medical Ethics Committee of the Utrecht University Medical Center (ORCHIDS study, protocol number UMCU 11–320/K). All caregivers provided active informed consent for the screening and the trial separately.

Parenting Program

We conducted a randomized controlled trial (see Weeland et al., 2017). After the baseline measurement, families were randomly assigned to the parenting program or no intervention (care-as-usual-control) group (1:1 ratio). Caregivers in the parenting program condition received the 14-session prevention Incredible Years (IY) Basic program (Webster-Stratton, 2001), which was developed to prevent or reduce child externalizing behavior by reducing harsh parenting and increasing positive parenting strategies. Caregivers in the control condition did not receive any intervention but were free to seek out (additional) care if needed (i.e., care-as-usual).

In past studies, IY has been shown to be effective in reducing children's externalizing behavior across settings and target populations (Leijten, Gardner, Landau, et al., 2018; Menting et al., 2013). The program starts with the focus on positive parenting strategies such as play, praise, and incentives, and then discusses effective limit setting, ignoring unwanted behavior, and time-out strategies. During the sessions, caregivers watch video vignettes of caregiver-child interactions, act in role-plays, have brainstorm sessions, and exchange experiences and ideas in small groups. The program uses a collaborative setting, in which group leaders establish themselves as facilitators, rather than as experts. To ensure maintenance of program effects, group leaders encourage caregivers to solve problems and to help each other solve problems. The program encourages caregivers to praise their children's positive behavior (e.g., compliance, sharing, staying calm when angry). Of the 14 sessions, four discuss praise, and one is devoted entirely to praise (School Age Basic Program, n.d.). In this praise-focused session, caregivers (a) discuss the benefits of praise; (b) practice praise during role plays; (c) are asked to choose a specific behavior of their child which they would like to see more often, and to praise this behavior consistently; (d) are encouraged to double the amount of praise that they would normally give their child; and (e) are asked to write down the praise they give, thereby teaching themselves to monitor their own behavior. In this process, caregivers are specifically recommended to use labeled (rather than unlabeled) praise.

In this study, 14 IY parenting groups (consisting of 8–15 caregivers each) were delivered. Caregivers were offered 14 weekly two-hour sessions and one "booster" session one month after termination of the program (i.e., 15 sessions total). Of all caregivers allocated to the program (92.4% female), 78% actively participated (i.e., attended at least one session). Caregivers who actively participated, attended on average 11.01 ($SD = 3.69$) out of 15 sessions and 74% attended at least 10 sessions. Twelve group leaders were involved in the delivery of IY in this study. Each parenting group was led by two group leaders (the same group leaders led all 15 sessions of one group) of which the main group leader had a background in clinical child psychology, had experience running IY groups before the study commenced, and was officially certified by The Incredible Years Inc. group leaders followed a standardized manual and completed a treatment integrity checklist per session. Checklists showed that on average 70.4% of standardized content was executed by group leaders. All sessions were videotaped to provide group leaders with feedback. Group leaders received ongoing supervision and training throughout the study.

Measures

At baseline (before the intervention), postintervention (directly after the parenting program), and follow-up (3–4 months after the parenting program), the child and one of his or her caregivers participated in structured observations in their own home, and the caregiver completed questionnaires. The same caregiver participated in all measurement waves. In the parenting program group, the caregiver who participated in IY also participated in the observations and completed the questionnaires.

Caregiver-Reports

We used the Eyberg Child Behavior Inventory (ECBI) to index externalizing behavior (Eyberg & Pincus, 1999). The ECBI has good psychometric properties (i.e., internal consistency, test–retest reliability, convergent validity, and divergent validity) in different populations and countries (Abrahamse et al., 2015; Axberg et al., 2008; Burns & Patterson, 2000) and has been used widely to assess effectiveness of caregiver-training programs (Abrahamse et al., 2015; Leijten et al., 2017; Spijkers et al., 2013). Caregivers completed the 36-item ECBI intensity scale (e.g., “Acts defiant when told to do something”), rated on 7-point scales (1 = *never* to 7 = *always*; $\alpha > .84$ for all three waves).

Observations

Caregiver and child were observed for 20 min while playing with a fixed set of toys in their own home. The session was videotaped for later coding. Coded child behavior in at home observation settings were found to be related to reports on this behavior from other informants, such as teacher reports (Nelson & Olsen, 2018). To make caregivers and children feel comfortable with being videotaped, each session started with a 5-min free play episode; this episode was not coded. The actual observation consisted of three five-minute interaction tasks: child-directed play (i.e., child directed the session), caregiver-directed play (i.e., caregiver directed the session), and clean up (i.e., caregiver made the child clean up). Caregiver and child behavior observed during both child-directed play and caregiver-directed interaction tasks were found to predict the longitudinal development of externalizing child behaviors (Fleming et al., 2017).

The data was coded using the Dyadic Parent–Child Interaction Coding System (DPICS-R), a measure for caregiver–child interactions (Robinson & Eyberg, 1981; Webster-Stratton, 1985). The system has good psychometric properties (Bessmer, 1998; Nelson & Olsen, 2018) and has been used widely to assess effectiveness of parent training programs (Brotman et al., 2009; Posthumus et al., 2012; Theise et al., 2014). The DPICS-R contains 39 codes representing the frequency of a wide range of child and parenting behaviors (Webster-Stratton, 1985). Child and caregiver behavior was coded per 5-min periods, in which the overall frequency of discrete behaviors was counted. For the first Dutch study on IY (Posthumus et al., 2012), researchers were directly trained by the manual owners. In following Dutch studies on IY, coders were trained by the Dutch research team. Coders were blind to condition (i.e., whether the data they were coding were from dyads in the parenting program or control group) and to measurement wave (i.e., whether the data they were coding was collected at baseline,

posttest, or follow-up). Intercoder agreement was excellent for all measures at all waves (intraclass correlations $> .85$).

Consistent with prior research (Posthumus et al., 2012; Robinson & Eyberg, 1981; Weeland et al., 2017), children’s externalizing behavior was measured by counting how often children yelled, whined, cried, talked backed (i.e., smart talk), or did not comply after a command (scores at baseline ranging from 0 to 54 times). Caregivers’ praise was measured by counting the number of times caregivers expressed a positive evaluation of a trait, action, or product of the child. Praise was coded as labeled when caregivers labeled what was being praised (e.g., “Great job for picking up the toys”; “Look at how well you built the house!”; scores at baseline ranging from 0–7). Praise was coded as unlabeled when it did not label what was being praised (e.g., “Great job”; “You did well”; scores at baseline ranging from 0–33).

Data Analysis

Data were analyzed in three steps. First, we examined how observed caregivers’ praise was related to observed children’s externalizing behavior. We used multilevel random effects models to assess relations both within and between families (Keijsers et al., 2016; Molenaar, 2004). We focused on three observation tasks conducted during the first measurement wave before the start of the intervention (i.e., at baseline), because these were unaffected by the parenting program. Rather than averaging caregivers’ praise across observation tasks (i.e., child-directed play, caregiver-directed play, and clean up), we analyzed praise during each task as a separate time point, so that we could separate within-family correlations (i.e., associations between within-family caregivers’ praise and child externalizing behavior) from between-family correlations (i.e., associations between rank-order of caregivers’ praise and child externalizing behavior). Within-family associations reflect whether changes in how much praise caregivers used were associated with changes in children’s externalizing problems. Between-family associations reflect whether externalizing behaviors were significantly different across families that differed (on average) in how much praise caregivers used.

Second, we conducted parallel change latent growth curve analyses to examine how the program affected observed caregivers’ praise and both caregiver-reported and observed child externalizing behavior, as well as how those program-induced changes were related. This analysis strategy expands on traditional repeated-measures analyses by allowing simultaneous modeling of change in the means, as well as in the variance and covariance of initial level and change. We used data from all waves. For each wave, for the sake of parsimony, we averaged caregivers’ praise across observation tasks. This was justified as counts of labeled praise and unlabeled praise were positively correlated across task. Unlabeled praise was significantly positively correlated across tasks at all waves (r ranged from .25 to .48, $ps < .05$). Labeled praise was not significantly correlated across tasks at baseline but was at pretest and follow-up (r ranged from .10 to .40, $ps < .05$). This may be explained by the fact that labeled praise was uncommon at baseline (on average less than once across the three tasks). Although these parallel change latent growth curve analyses allowed us to assess parallel change, they did not allow us to establish temporal order (and thus infer a mechanism of change).

Third, we conducted cross-lagged panel models (CLPMs) with indirect effects to examine whether changes in observed caregivers' praise mediated the program effect on caregiver-reported and observed child externalizing behavior. However, traditional CLPM may not always present the actual within-family relationships over time and may in turn lead to erroneous conclusions regarding the presence of causal effects (Hamaker et al., 2015). We therefore added random intercepts to partial out between-family variance. In this step, we used data from all waves, and for each wave, we averaged the overall frequency of caregivers' praise across the three observation tasks.

All analyses were performed in Mplus 8 (Muthén & Muthén, 2017). Analysis code is available upon request. Because data were skewed, we reported maximum likelihood robust (MLR) fit indices. Model fit was assessed using the χ^2 -test of model fit, root mean square error of approximation (RMSEA; model fit satisfactory when $< .08$), Confirmatory factor index (CFI; model fit satisfactory when $> .90$) and standardized root mean square residual (SRMR; model fit satisfactory when $< .08$; Hu & Bentler, 1999). Missing data were treated using full information maximum likelihood (FIML). Bootstrapped (5,000 bootstrap samples) confidence intervals were used to evaluate significance of indirect effects.

A priori power estimates for structural equation models (among which path and growth curve models) are not well defined in the literature (Berry & Willoughby, 2017; K. Lee & Whittaker, 2018). Results on appropriate sample sizes for structural equation models using Monte Carlo data simulations ranged from 30 to 460, depending on such factors as measurement error and missing data (Wolf et al., 2013). With our sample size of 387 families, our most complex models (i.e., the cross-lagged panel models) have a 12.9 to 1; cases to free parameter ratio.

Results

Random Assignment

Families in the parenting program and control conditions did not significantly differ in age (child or caregiver), gender (child or caregiver), country of birth (child or caregiver), caregivers' education level, parenting behavior (observed), which included praise, or child behavior (self-reported or observed) at baseline, $ps > .06$, indicating successful randomization.

During the study, 28 families (7%) dropped out. Families who dropped out did not differ significantly from families who participated in all three waves in terms of reported and observed

parenting and child behavior measurements at baseline, or caregiver and child age, gender, or ethnicity, $ps > .09$. They did differ in terms of level of education, $\chi^2 (8, N = 386) = 21.52, p < .01$. Compared with caregivers who participated in all three waves, those who dropped out on average had a lower education level: 81% of caregivers who dropped out did not have a higher vocational training or university degree, compared with 51% of caregivers who did not drop out.

Preliminary Analyses

Table S1.1 shows descriptive statistics for primary variables. In the control group, caregiver-reported externalizing child behavior was moderately stable across waves but observed externalizing child behavior was less stable. During the 15-min observation session at baseline, caregivers on average used unlabeled praise five times and labeled praise less than once. In the control group, unlabeled praise was stable across waves, but labeled praise was less stable. Labeled and unlabeled praise at baseline (T1) were not related to reported or observed externalizing behavior in children at baseline (see Table S1.1 Online Supplementary Material 1).

How Were Praise and Child Externalizing Behavior Related?

Caregivers' labeled praise and children's externalizing behavior were not significantly correlated at the within-family level, $B = .049, SD = .071, p = .495, 95\% \text{ CI} [-.091, .189]$, or at the between-family level, $B = -.070, SD = .006, p = .219, 95\% \text{ CI} [-.181, .041]$ level. It is important to note, however, that on average caregivers used little labeled praise and both between and within-family variance was very low.

Caregivers' unlabeled praise and children's externalizing behavior were positively correlated at the within-family level, $B = .749, SD = .247, p = .002, 95\% \text{ CI} [.264, 1.234]$, showing that the more caregivers used unlabeled praise (compared to their own average), the more children showed externalizing behavior (compared with their own average), and vice versa. At the between-family level, caregivers' unlabeled praise and children's externalizing behavior were not significantly correlated, $B = -.246, SD = .277, p = .374, 95\% \text{ CI} [-.790, .279]$.

Did the Parenting Program Increase Caregivers' Praise and Reduce Children's Externalizing Behavior?

Model fit of the parallel change latent growth curve model was sufficient based on the RMSEA, CFI, and SRMR values, but the

Table 1
Latent Growth Curves of Child Behavior and Caregiver Praise T1–T3

Program outcome	Control			Parenting program		
	<i>B</i>	<i>SE</i>	<i>p</i>	<i>B</i>	<i>SE</i>	<i>p</i>
Caregiver labeled praise*	-.012	.048	.810	.624	.118	<.001
Caregiver unlabeled praise*	-.461	.215	.032	1.565	.328	<.001
Child externalizing behavior (observed)	.325	.532	.541	-.701	.544	.196
Child externalizing behavior (reported)*	-.145	.023	<.001	-.268	.031	<.001

Note. * Significant difference between the control and the parenting program group ($p < .01$): condition (0 = control and 1 = parenting program group) effects on: Caregiver labeled praise $B = .620, SD = .107, p < .001$; Caregiver unlabeled praise $B = 2.497, SE = .328, p < .001$; Child externalizing behavior (reported): $B = -.099, SE = .034, p = .004$; Child externalizing behavior (observed): $B = .060, SE = .581, p = .918$.

Chi^2 test of model fit was significant ($Chi^2 = 97.36, df = 35, p < .001$; RMSEA = .068; CFI = .921; SMRS = .051). The program had a significant effect on the slope of both labeled praise (condition [0 = control and 1 = parenting program group] effects on caregivers' labeled praise $B = .620, \beta = .330, p < .001$, Cohen's $d = .84$) and unlabeled praise ($B = 2.497, \beta = .462, p < .001, d = .67$; see Table 1 Note). In the parenting program group, labeled and unlabeled praise increased, but in the control group, unlabeled praise decreased, while labeled praise remained stable (see Table 1). Overall, from baseline to follow-up, the program raised labeled praise much more strongly (260% increase) than it raised unlabeled praise (65% increase).

There were no differences between conditions in observed child externalizing behavior ($B = .060, \beta = .008, p = .918$), but there was a modest effect of condition on caregiver-reported child externalizing behavior. In both parenting program and control group, caregiver-reported externalizing behavior decreased over time, but it decreased more strongly in the parenting program group ($B = -.099, \beta = -.217, p = .004, d = .31$, see Table 1 Note).

Importantly, the slopes of caregivers' praise and caregiver-reported child externalizing behavior were not significantly correlated: The change in caregivers' praise from baseline to follow-up

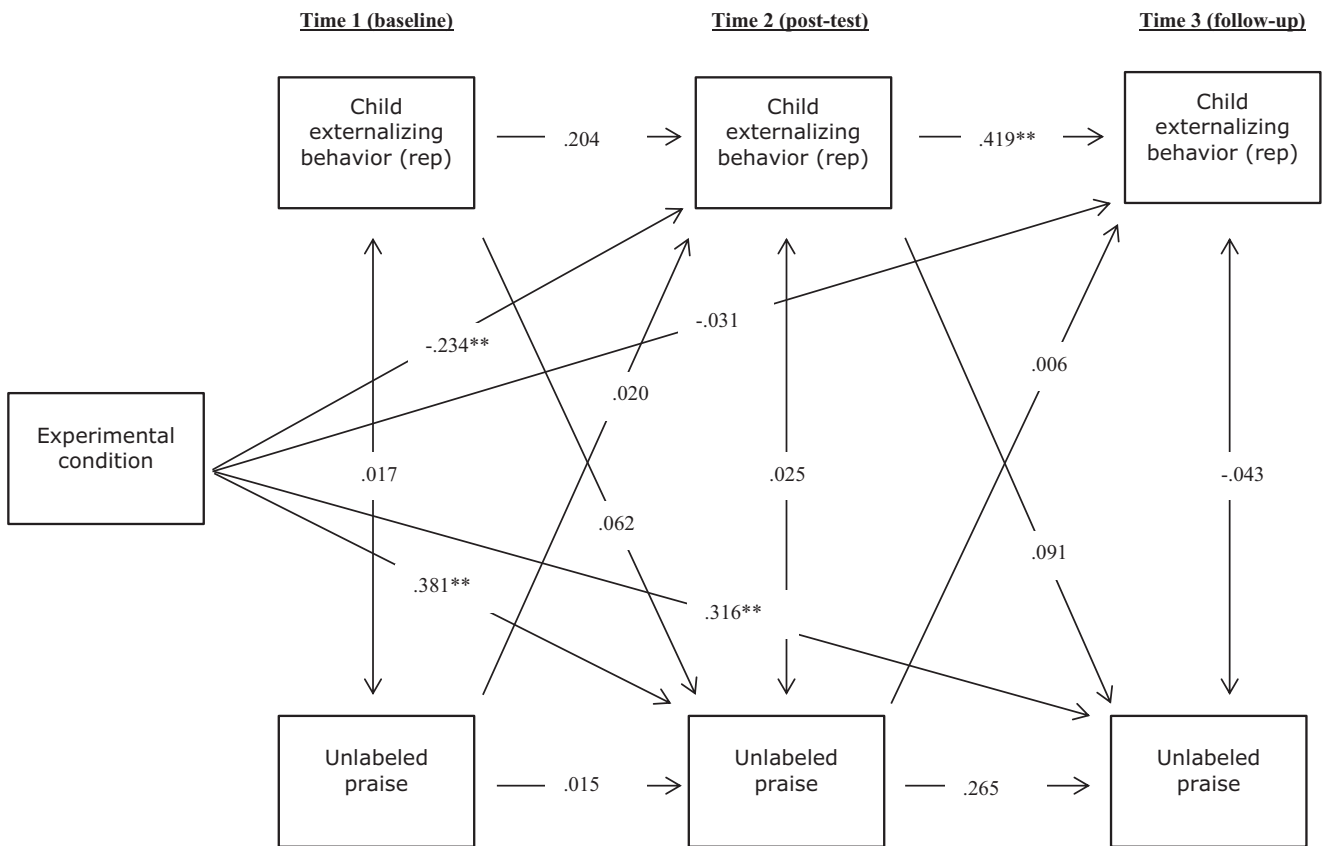
was not significantly related to the change in children's externalizing behavior from baseline to follow-up.

Did an Increase in Caregivers' Praise Mediate Program Effects on Child Externalizing Behavior?

Model fit of the cross-lagged panel models was excellent for those using observed child behavior and unlabeled praise ($Chi^2 = 4.594, df = 3, p = .204$; RMSEA = .037; CFI = .995; SRMR = .022) and labeled praise ($Chi^2 = 4.849, df = 3, p = .183$; RMSEA = .040; CFI = .991; SRMR = .021). Model fit for models using caregiver-reported child behavior was sufficient based on the RMSEA, CFI, and SRMR values, but the model with unlabeled praise had a significant Chi^2 value (labeled praise: $Chi^2 = 9.270, df = 4, p = .055$; RMSEA = .058; CFI = .989; unlabeled praise: $Chi^2 = 10.075, df = 3, p = .018$; RMSEA = .078; CFI = .989, SRMR = .032).

The IY parenting program led to increased labeled and unlabeled praise by caregivers and decreased caregiver-reported, but not observed, child externalizing behavior at postintervention. There were no overtime relations between caregivers' praise and caregiver-reported externalizing behavior. Importantly, the intervention effect on caregiver-reported externalizing behavior was not mediated by caregivers' use of labeled or unlabeled praise (see Figures 1 and 2).

Figure 1
Random Intercept Cross-Lagged Panel Model of Condition (Control Versus Parenting Program), Reported Child Externalizing Behavior and Observed Unlabeled Praise

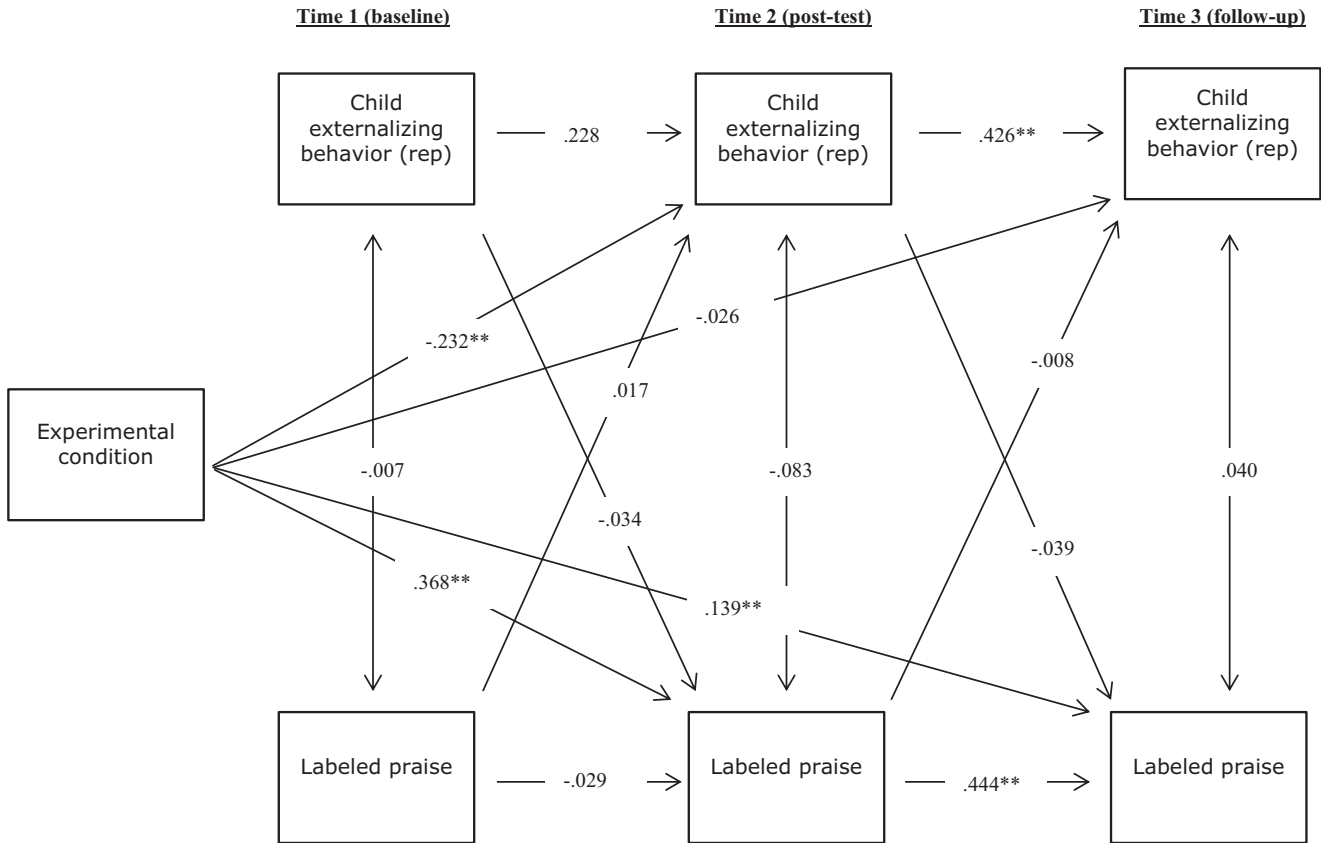


Note. Estimates are standardized (Beta); ** $p < .01$. Indirect effect from condition to child externalizing behavior T3 via caregiver praise T2: $\beta = .002$; $SD = .027$; $p = .931$; 95% CI [-.050, .054].

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Figure 2

Random Intercept Cross-Lagged Panel Model of Condition (Control Versus Parenting Program), Reported Child Externalizing Behavior and Observed Labeled Praise



Note. Estimates are standardized (Beta); ** $p < .01$. Indirect effect from condition to child externalizing behavior T3 via caregiver praise T2: $\beta = -.003$; $SD = .0$; $p = .928$; 95% CI $[-.064, .041]$.

However, caregivers' use of labeled praise (Figure 3; see Figure 4, but not unlabeled praise,) at postintervention predicted less *observed* child externalizing behavior at follow-up, $B = -1.835$, $\beta = -.008$, $p = .02$ (see Figure 4). Moreover, there was an indirect effect of condition on child externalizing behavior at follow-up via caregivers' praise at postintervention, but only for labeled praise and only on observed child externalizing behavior. This indirect effect was small (equivalent to $d = .10$, Wilson, n.d.). For the 95% CI of the indirect effects, see the Notes of Figures 1–4. We conducted sensitivity analyses by adding age as a predictor of caregivers' use of praise and of child externalizing behavior at pretest to the models. This did not change the results.

Secondary Analyses

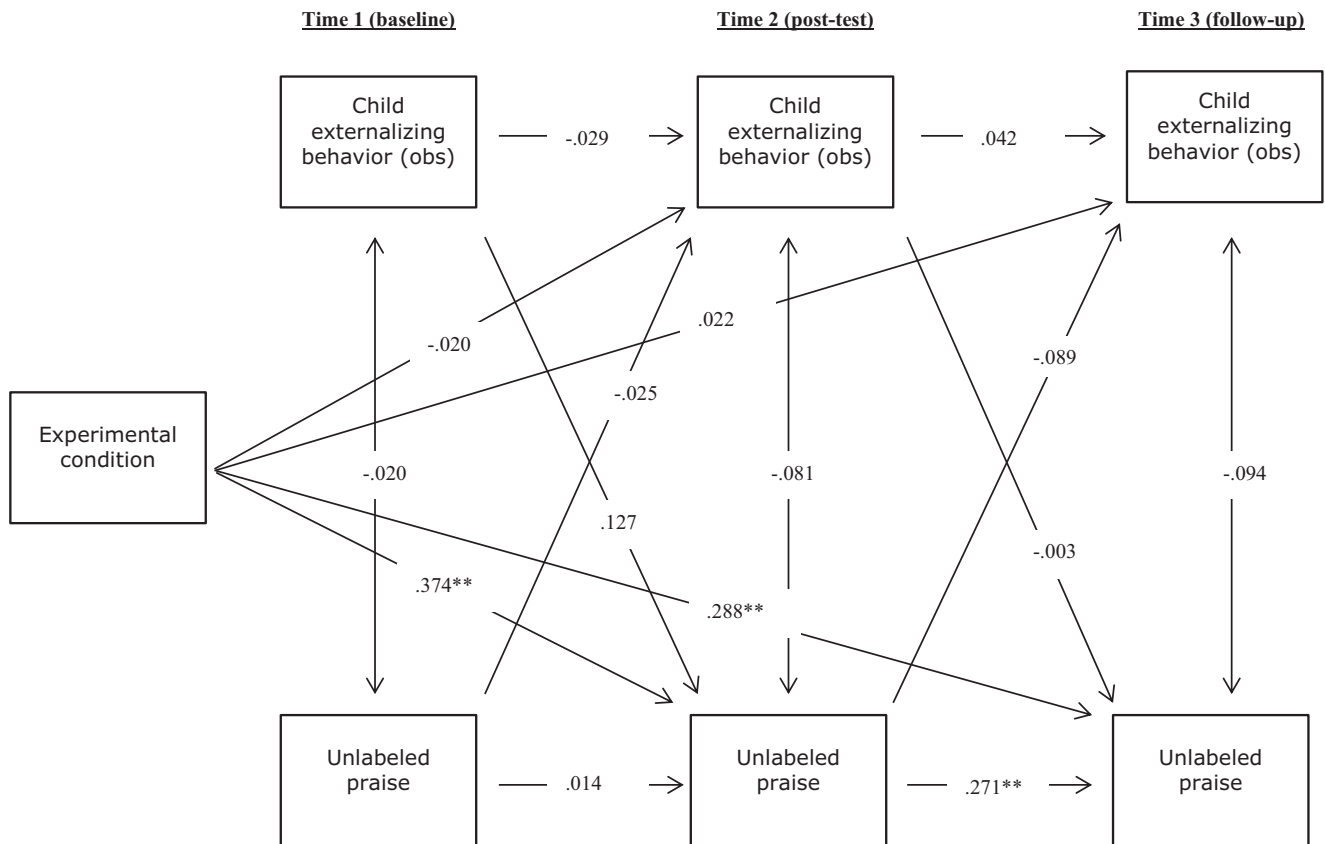
We conducted secondary analyses to: (a) test an alternative explanation and (b) explore to what extent our findings are specific to praise or generalize to related parenting strategies (i.e., use of descriptive, nonevaluative comments, positive physical behavior, and criticism). First, it may be that praise contributes to behavioral change not via a decrease in externalizing, but an increase in

positive behavior. Since praise is typically contingent on displaying positive behavior, this may be an alternative explanation for our findings. We therefore repeated our analyses using positive child behavior (observed compliance, nonverbal positive affect, verbal positive affect and physical warmth and caregiver-reported) as an outcome (see Online Supplementary Material 2). Although caregivers' praise was positively correlated with positive child behavior (see Table S2.1), there was no evidence for an overtime relation between caregivers' praise and positive child behavior. Moreover, the intervention did not increase positive child behavior, either directly or indirectly via caregivers' praise (Table S2.2, Figures S2.1–S2.4)

Second, increased caregiver praise did not explain the effects of the parenting program on caregiver-reported externalizing child behavior. We conducted two sets of secondary analyses to test the specificity of this finding by exploring two different caregiver behaviors, which are theoretically related to praise, as possible mediators of the program effects: (a) caregivers' use of descriptive, nonevaluative comments (e.g., "You're putting all toys away"); and (b) caregivers' positive physical behavior (e.g., a hug, a pet on the head). Unlike praise, descriptive comments are

Figure 3

Random Intercept Cross-Lagged Panel Model of Condition (Control Versus Parenting Program), Observed Child Externalizing Behavior and Observed Unlabeled Praise



Note. Estimates are standardized (Beta); $** p < .01$. Indirect effect from condition to child externalizing behavior T3 via caregiver praise T2: $\beta = -.033$; $SD = .027$; $p = .216$; 95% CI $[-.086, -.019]$.

nonevaluative, and physical behavior is nonverbal. If these caregiver behaviors have the same effect on externalizing child behaviors as praise, this would suggest that the evaluative and verbal nature of praise is not critical for its effectiveness. The parenting program was effective in increasing caregivers' descriptive comments and positive physical behavior (Table S3.2). However, there were no relations over time between these behaviors and children's externalizing behavior. Importantly, these caregiver behaviors did not mediate program effects on children's externalizing behavior, both caregiver-reported and observed (see Figures S3.1–S3.4, Online Supplementary Material 3). Thus, the effects of descriptive, nonevaluative comments and positive physical behavior were different from those of praise, suggesting that the relations we found between praise and externalizing child behavior are unique to praise.

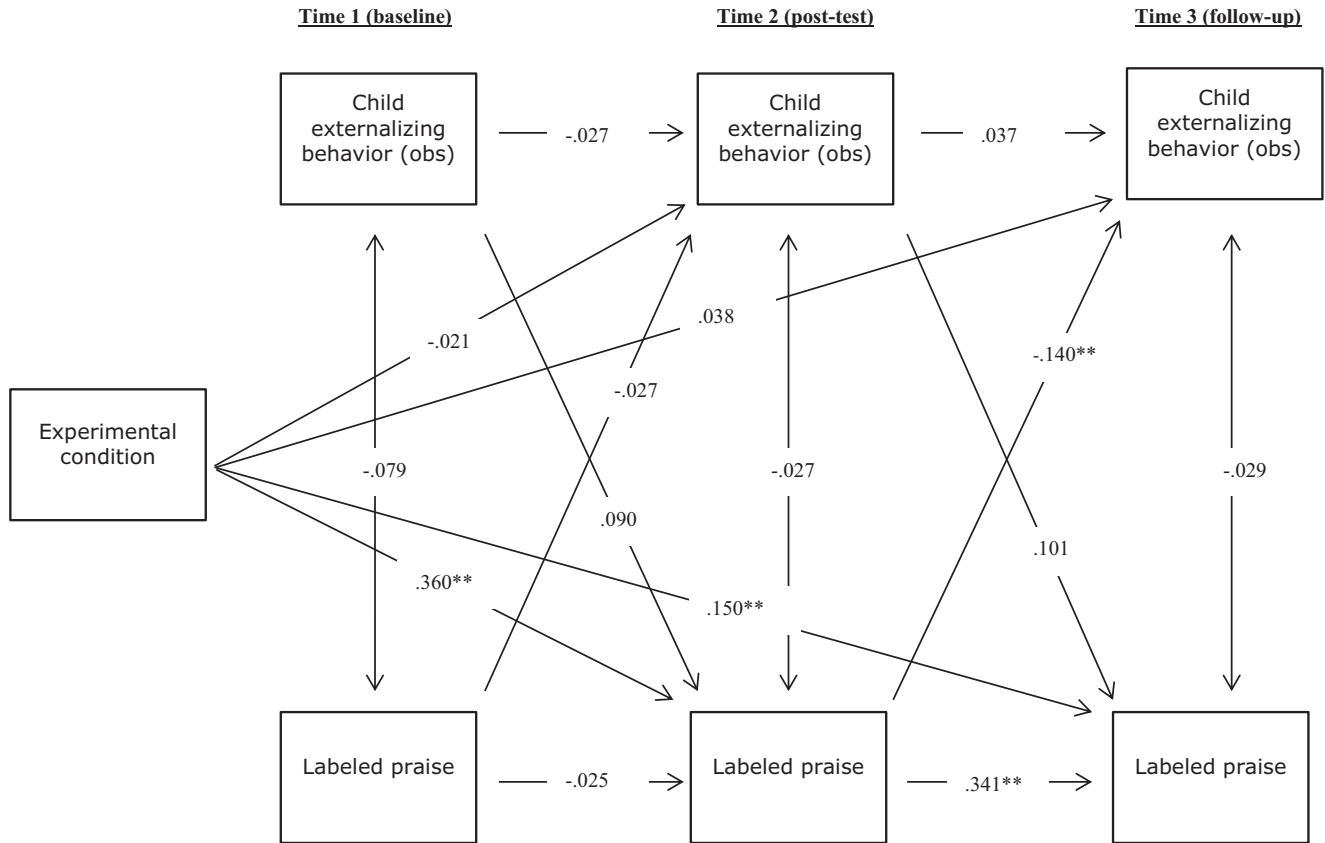
Third, when it comes to the relationship between parenting and children's externalizing behavior, bad might be stronger than good (Baumeister et al., 2001). The presence of negative parenting behaviors might have a stronger impact on children's externalizing behavior than does the absence of positive parenting behaviors (Pinquart, 2017). We therefore explored whether the effects of the parenting program on externalizing child behavior are explained by a decrease in caregivers' criticism instead of an increase in

caregivers' praise (see Online Supplementary Material 4). Before the intervention, observed criticism was positively correlated with children's externalizing behavior (Table S4.1). Moreover, the program was successful in decreasing criticism at posttest. However, there were no relations over time between criticism and children's externalizing behavior (Figures S4.1 and S4.2). Importantly, criticism did not mediate program effects on children's externalizing behavior. The effects of the parenting program on children's externalizing behavior were thus not explained by the decrease in caregivers' criticism of their child's behavior.

In sum, our secondary analyses suggest two conclusions: (a) The parenting program effects on parenting behavior were not specific to praise. The program did not only increase praise, it also increased descriptive comments, increased positive physical behavior, and decreased criticism (which are conceptually related to, but distinct from, praise). However, none of these caregiver behaviors mediated the program effects on caregiver-reported externalizing behavior in children. (b) The overtime effects on children's externalizing behavior were unique to praise. Specifically labeled praise (but not unlabeled praise, descriptive comments, positive physical behavior, or criticism) was longitudinally related to children's externalizing behavior.

Figure 4

Random Intercept Cross-Lagged Panel Model of Condition (Control Versus Parenting Program), Observed Child Externalizing Behavior and Observed Labeled Praise



Note. Estimates are standardized (Beta); $** p < .01$. Indirect effect from condition to child externalizing behavior T3 via caregiver praise T2: $\beta = -.050$; $SD = .023$; $p = .029$; 95% CI $[-.099, -.008]$.

Discussion

Praise is one of the most often recommended parenting strategies to reduce children's externalizing behavior. However, there is little empirical evidence that caregivers' praise indeed predicts changes in children's externalizing behavior. The aim of this longitudinal observational study was to evaluate the effectiveness of caregivers' use of labeled and unlabeled praise in decreasing children's externalizing behavior. It did so in the context of a popular evidence-based parenting program, Incredible Years (Webster-Stratton, 2001). Our results show that: (a) before the intervention, within families, unlabeled praise predicted more, rather than less, externalizing behavior; (b) the program successfully increased caregivers' labeled and unlabeled praise and reduced caregiver-reported (but not observed) externalizing behavior, but these changes were not significantly related; and (c) the program effects on caregiver-reported externalizing behavior were *not* mediated by caregivers' praise. Although the program did not directly reduce observed externalizing behavior, it predicted reduced observed externalizing behavior indirectly via labeled praise (a small effect). Our results suggest that although praise and externalizing child behavior are related, praise may not be a key mechanism of change

underlying the effects of parenting programs. If praise has beneficial effects on children's externalizing behavior, these effects are probably limited to labeled praise.

Theoretical Implications

An important challenge for research on parenting practice and interventions is to identify which elements are effective and which are not (Forehand et al., 2014). By identifying parenting behaviors that are most important for changing child behavior, research can help make these interventions more precise and efficient. Our key finding is that the parenting program increased praise substantially (e.g., from baseline to postintervention, caregivers used more than twice as much labeled praise), but this increase did not explain the program effects on caregiver-reported externalizing child behavior. Although there was no direct effect of the program on observed externalizing child behavior, there was a small indirect effect via labeled praise. The overall pattern of results, across informants, suggests that praise is not a key mechanism by which parenting programs like Incredible Years lead to reductions in externalizing problems.

Our study did reveal two cases in which praise was related to externalizing behavior in children. First, within families, caregivers' use of unlabeled praise was related to more observed externalizing behavior in children. Children with externalizing behavior, who generally receive much criticism and little praise, may perceive praise as controlling or insincere (Deci & Ryan, 2008; Lee et al., 2016). This may be specifically the case when caregivers use more unlabeled praise. According to self-determination theory, controlling or insincere praise may reduce children's intrinsic motivation to behave well and prevent them from internalizing rules (Laurin & Joussemet, 2017; Ryan & Deci, 2017). Alternatively, the finding may suggest that caregivers increase their praise in response to children's externalizing behavior as a strategy to prevent further escalations. Previous studies have found a negative relation between caregivers' praise and children's prosocial behaviors such as helping (Eisenberg et al., 1992; Grusec, 1991), suggesting that caregivers may be most inclined to praise those children who generally do not behave prosocially. The negative association between labeled praise and children's externalizing behavior *over time* may indicate that over longer periods of time labeled praise could give children the feeling that their caregiver is generally affectionate toward them and notices their positive behaviors. Thus, children might feel seen and acknowledged, reducing their need to rebel against their caregivers. This may also mean that when delivering praise, it is not only be important that caregivers specify the behavior they are praising (i.e., use labeled praise), but that the context in which praise is delivered, its interpretation by the recipient, and the way it is delivered matter (i.e., delivered temporally contingent upon children's behavior and in a positive, genuine, and credible way; Brophy, 1981; Henderlong & Lepper, 2002). For this, caregivers need to accurately interpret the child's signals and needs, such as their need for autonomy, and use praise in a way that is sensitive to these needs (Brummelman et al., 2014; Deci et al., 1999; Ryan & Deci, 2000).

Second, longitudinally, caregivers' use of labeled praise was related to less observed externalizing behavior in children. Moreover, although the program had no significant effect on observed externalizing behavior, there was an indirect effect via labeled praise. One possible explanation is that the effects of the parenting program on observed externalizing child behavior emerge only in families in which the caregiver increased in the use of labeled praise. Another possibility is that praise may not be a tool to directly decrease externalizing behaviors, but may still contribute to changes in this behavior, for example, in combination with other parenting behaviors (see Forehand et al., 2014). Praise may be a prerequisite for an amplifier of the effects of other parenting behaviors on child behavior. When caregivers ignore children's mild externalizing behaviors or use time-out in response to children's severe externalizing behaviors, it may be important for them to praise children's subsequent appropriate behaviors. Indeed, a combination of behavior management and relationship enhancement by caregivers has been found effective in decreasing children's externalizing behavior (Leijten, Melendez-Torres, Gardner, et al., 2018).

Our aim was to examine the effects of praise on children's externalizing behavior. Of course, the evidence-based parenting program we used in this study to increase caregivers' praise targeted more parenting behaviors than just praise. Thus, our study cannot "isolate" the effects of praise. To address this limitation,

we conducted several analyses to examine to what extent effects were specific to praise. We found that the parenting program did not only increase praise; it also led to changes in parenting techniques that are theoretically related to but distinct from praise. Specifically, it increased descriptive comments, increased positive physical behavior, and decreased criticism. Like praise, these behaviors did not mediate the program's effects on caregiver-reported externalizing child behavior. Unlike praise, these behaviors were not significantly related to children's externalizing behavior, neither concurrently nor longitudinally, and there was no indirect effect from the program on children's observed externalizing behavior via these behaviors. This suggests that, in the natural development of children's externalizing behavior, the role of labeled praise is unique relative to many other parenting strategies. What separates praise from these other strategies is that it is *evaluative* (whereas descriptive comments are nonevaluative), *verbal* (while positive physical behavior is nonverbal), and *positive* (whereas criticism is negative; Brummelman et al., 2016; Kanouse et al., 1981).

To be sure, our findings do not imply that practitioners or interventionists should abandon praise. Rather, our findings suggest that increased praise may be a "manifestation" rather than a "mechanism" of effective parenting interventions (see also Roberts, 1985). Indeed, the intervention reduced children's externalizing behavior, but praise did not mediate this effect. How is this possible? Children with externalizing behavior often experience negative or even coercive caregiver-child interactions (Danforth et al., 1991; Martin et al., 2002). Even when praise itself has no causal effect, interventions that teach caregivers to praise their children may break these negative patterns (Colalillo & Johnston, 2016; Granic et al., 2007; Weeland et al., 2021). For example, these interventions may help caregivers focus on the positive, see that not all their child's behavior is driven by hostile intentions and may give caregivers the confidence they need to handle externalizing behavior using the "toolbox" of parenting techniques (Weeland et al., 2021). Consistent with the view that the parenting program affects caregivers' cognitions—for example change caregivers' perceptions of children's behavior—the program reduced caregiver-reported, but not observed, externalizing behavior in children. Over time, these new cognitions may decrease negativity and cultivate positive caregiver-child interactions that help reduce children's externalizing behavior (Boeldt et al., 2012). Future research on mechanisms of change underlying parenting program effectiveness should assess caregiver cognitions as well as behaviors.

Moreover, our results may also shed new light on the etiology of externalizing behavior in children. Extending earlier work (Lee et al., 2016; Leijten et al., 2016; Owen et al., 2012), our findings suggest that praise may not be common in families with children at risk of externalizing behavior and may even decrease over time when no intervention takes place. However, a lack of caregivers' praise may rather be a "symptom" than a "cause" of externalizing behavior in children. Programs that teach caregivers to praise their children may break the often experiences negative or even coercive caregiver-child interactions in families of children with externalizing behavior problems (Colalillo & Johnston, 2016; Danforth et al., 1991; Granic et al., 2007; Martin et al., 2002). Our study supports that idea. For example, in the control group, praise decreased over time, suggesting a downward spiral in positive

caregiver–child interactions. Over time, the praise may decrease negativity and cultivate positive caregiver–child interactions that help reduce children’s externalizing behavior (Boeldt et al., 2012). Indeed, parenting programs that are most effective were found to focus on positive caregiver–child interactions (Kaminski et al., 2008). Future research should test this possibility by examining whether praise leads caregivers to perceive their child’s behavior more positively, setting in motion an upward spiral of positive caregiver–child interactions.

Our findings may also provide evidence for the importance of distinguishing labeled from unlabeled praise. Caregivers naturally seem to use labeled praise rarely; yet, labeled praise (but not unlabeled praise) predicted a decrease in observed externalizing behavior over time. This may have important theoretical and clinical implications. From a conditioning perspective (Brophy, 1981; Kazdin, 1981), labeled praise is expected to be more effective, because it highlights the behavior being praised, thereby establishing a clear link between the reward and the desired behavior. From a self-determination perspective (Ryan & Deci, 2017), labeled praise is expected to be more effective because it feels more sincere. When children receive labeled praise (e.g., “Good job cleaning your room”), they may infer that their caregiver paid genuine attention to their behavior. Our study implicates that naturally caregivers’ may rarely use this type of praise. Therefore, practitioners may encourage caregivers to label the behavior children are praised for (i.e., “Well done picking up your toys” instead of “Well done”).

Strengths, Limitations, and Future Directions

Strengths of our study include its longitudinal design, precise developmental timing, large sample of children at risk for externalizing behavior problems, and observational assessment of caregivers use of both labeled and unlabeled praise in a naturalistic setting. Our study also has limitations. First, we increased caregivers’ praise through a well-established and evidence-based behavioral parenting training in which praise is part of the program content. Although this program indeed led to a substantial increase in caregivers’ praise, it also targeted other parenting behaviors, which may correlate with praise. Future studies could target praise in isolation to disentangle its effects from other parenting behaviors (for example, by exporting experimental manipulations of praise to field settings and examining its long-term effects; Leijten et al., 2016) or could use a factorial design to disentangle praise from other program components (Collins et al., 2014).

Second, in our study, no significant program effects were found for observed child behavior. Complementing caregiver-reports on child behavior with observations has important strengths (Seifer, 2006). Observed child behavior has been found to be related to reports on this behavior from other informants, such as caregiver- and teacher-reports (Fleming et al., 2017; Nelson & Olsen, 2018). Different instruments may measure unique aspects of the same construct, which may explain the differences between findings on program effectiveness using different instruments. At the same time, the observations in this study are limited to behavior in one specific setting (i.e., at home), one specific situation (i.e., during play), specific tasks (i.e., play and clean-up), and at one specific moment per measurement phase (vs. how often behaviors occur in general as assessed in questionnaires). To overcome these limitations, future

studies could include multiple observations, across different settings, and include multiple informants such as multiple caregivers and teachers.

Third, effects of parenting programs on externalizing child behavior are generally modest (Mingebach et al., 2018), specifically in (indicated) prevention settings such as in our study (Menting et al., 2013). In our study, program effects were small for caregiver-reported externalizing child behavior and nonsignificant for observed externalizing child behavior. This may reduce power to find significant indirect effects of the program on child behavior, via caregivers’ praise (Zhao et al., 2010). Moreover, although a significant direct effect is not a statistical prerequisite for testing mediation, the lack of a direct (or total) effect of the program on observed externalizing behavior complicates the interpretation of the found small but significant indirect effect via labeled praise. For example, one possible alternative statistical explanation for this finding may be differential power for detecting direct and indirect effects (Rucker et al., 2011).

Our study identifies important research directions. One direction is to assess how praise is delivered by caregivers and perceived by children, as well as which psychological processes underly the short- and longer-term effects of praise. For example, are children more likely to accept praise when it is delivered in a supportive tone of voice? Similarly, are children more likely to reject praise when it is phrased much more positively than they are used to from their caregivers? Another direction is to examine whether the effects of praise are the same or different for different children, based on for example their age, behavioral difficulties, and temperament (Matthys et al., 2013; Slagt et al., 2016; Weeland et al., 2015). There is preliminary evidence that, for example, the effects of positive parenting strategies (such as praise) on externalizing child behavior may be strongest for children with high activity levels, high intensity pleasure, impulsivity, and low shyness (Chen et al., 2014). These children may be more sensitive to reward, and therefore more likely to display behaviors that have been praised by caregivers. Future research should examine whether these effects are most pronounced for labeled praise.

Conclusion

Because parenting programs consist of many different components, an important challenge of intervention research is to identify which elements are effective in changing child behavior and which are not (Forehand et al., 2014). The use of praise is recommended in most, if not all, parenting programs targeting children’s externalizing behavior problems. The overall results of our study suggest that praise may be related to externalizing child behavior but may not be a key mechanism by which parenting programs lead to reductions in externalizing problems and question whether it is justifiable that this parenting technique receives so much attention. If praise has beneficial effects on children’s externalizing behavior, these effects are probably limited to labeled praise.

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Correction to Durkin et al. (2022)

In the online supplemental materials for the article “Effects of a Statewide Pre-Kindergarten Program on Children’s Achievement and Behavior Through Sixth Grade” by Kelley Durkin, Mark W. Lipsey, Dale C. Farran, and Sarah E. Wiesen (*Developmental Psychology*, 2022, Vol. 58, No. 3, pp. 470–484, <https://doi.org/10.1037/dev0001301>), there was an error in Tables S1 and S3. An incorrect reverse-coded version of the treatment condition variable was used in the logistic regression models, causing the signs of the coefficients to be reversed, although the magnitude and *p* values were correct. The reported coefficients and odds ratios have been updated to have the correct direction of effects.

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