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# The Effect of Praise, Positive Nonverbal Response, Reprimand, and Negative Nonverbal Response on Child Compliance: A Systematic Review

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**Abstract** Lack of compliance has both short- and long-term costs and is a leading reason why parents seek mental health services for children. What parents do to help children comply with directives or rules is an important part of child socialization. The current review examines the relationship between a variety of parenting discipline behaviors (i.e., praise, positive nonverbal response, reprimand, negative nonverbal response) and child compliance. Forty-one studies of children ranging in age from 1½ to 11 years were reviewed. Reprimand and negative nonverbal responses consistently resulted in greater compliance. Praise and positive nonverbal responses resulted in mixed child outcomes. The findings are discussed based on theory and populations studied. The authors propose a mechanism that may increase children's sensitivity to both positive and negative behavioral contingencies.

**Keywords** Child compliance · Parenting · Praise · Reprimand

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## Introduction

Child noncompliance is the top reason why parents seek help from mental health providers (Chamberlain and Smith 2003; Schuhmann et al. 1996). Noncompliance can be defined as failing to follow or doing the opposite of an instruction, directive, or request. Contrarily, compliance can be defined as acting in accordance with a directive to engage in or to stop engaging in a behavior. The impact of parenting behaviors on child compliance is important because high rates of noncompliance beginning in early childhood can be a developmental precursor to a variety of disruptive behavior disorders such as conduct problems (Degangi et al. 2000; Egeland et al. 1990; McMahon 1994; Webster-Stratton 1998), hyperactivity/ADHD (Barkley 1998; Campbell 1991; Campbell et al. 1986; Egeland et al. 1990; McMahon 1994; Schuhmann et al. 1998), aggression (Campbell 1991; Campbell et al. 1986; Schuhmann et al. 1998), and oppositional-defiant disorder (Schuhmann et al. 1998). If unchecked, persistent adolescent behavior problems can develop into antisocial behaviors in adulthood (Moffitt et al. 2002). Fortunately, certain parental responses to noncompliance at an early age can prevent behavior problems from developing in adolescence.

Children are not born behaving according to societal norms and complying with their parents' wishes; it is the parents' role to teach their children how to behave cooperatively with others (Kochanska et al. 1997; Strand 2002). One way in which parents teach their children how to behave is with positive and negative consequences for children's actions. According to the law of effect (Thorndike 1898), something that rewards a specific behavior will, by definition, increase that behavior over time and something that punishes a specific behavior will reduce that behavior over time. Operant conditioning theory posits that

reinforced behaviors increase and punished behaviors decrease because of the learned association between the behavior and the consequence (reward or punishment) (Skinner 1938). One of the most common ways that parents attempt to reward and punish their children is with verbal consequences of praise and reprimand (Garner 2006; Grusec 1991; Maccoby and Martin 1983; Pettitt 1946). Alone praise and reprimand are merely verbalizations, but after repeated pairings with naturally reinforcing or punishing consequences, praise and reprimand develop social meaning. Operant theory could help explain the process through which praise and reprimand help socialize compliance. When faced with an external stimulus to act, children, like all other creatures (often unconsciously), react to the benefits of one action compared with other actions. The principle of relative reinforcement value (Skinner 1953) identifies the most powerful of competing contingencies based on the amount or rate of reinforcement (Catania 1963), the immediacy of reinforcement (Chung and Herrnstein 1967), and the quality of the reinforcer (Miller 1976). The relative reinforcement value of contingencies helps dictate the child's behavioral response. The quality of positive attention given while praising may further its function as a reward, whereas the quality of negative attention given while reprimanding may further its function as a punisher (Catania et al. 1990; Lowe et al. 1983; Skinner 1969). Parent training programs are informed by the operant notions that praise could reinforce compliance if sufficiently rewarding and reprimand could punish noncompliance if sufficiently aversive.

Attachment theory explains how parents' use of consequences may be partially determined by attachment style. Attachment theorists argue that parents can encourage secure attachment by creating loving, supportive, and caring environments and by setting appropriate limits and boundaries for their children (Ainsworth et al. 1978; Bowlby 1977, 1988; Sroufe 1979). Parents may promote secure attachment by using praise to create a warm environment and reprimands to set limits. Reciprocally, attachment style influences children's manner of responding to parents (Bowlby 1958, 1977). The quality of the parent–child relationship may serve to increase or decrease the value of praise and reprimands for the child, thereby impacting compliance. Securely attached infants display a number of positive outcomes, including greater compliance in toddlerhood and early childhood (Sroufe 1983).

As with the above theories, social learning theory (an expansion of operant theory) explains reciprocity between parent and child behavior. Social learning theory suggests that reinforcement affects behavior as children learn that their behavior can elicit the reinforcer (Dodge 1980; Rotter 1966). If children learn that their compliance is associated with a subsequent rewarding response, they will likely behave in a manner that produces the desired response. Learning can occur through direct experience and through observing others, such as one's parents, interacting (Bandura 1977, 1982). Positive parental responses may reinforce compliance by fostering a pattern of reciprocal responsiveness between parent and child. Praise gains its reinforcing power over time from repeated pairings with other natural reinforcers, including contingent attention and material rewards. Similarly, if reprimand functions as an aversive stimulus, children learn to avoid reprimand by reducing noncompliance. However, children who receive negative attention (reprimand) for noncompliance but do not receive positive attention for compliance may be socialized not to comply because these children learn that noncompliance yields attention (Patterson 1982). Social learning theory would suggest that when children only receive positively reinforcing attention for noncompliance, children learn not to comply because receiving attention is functionally more valuable than complying (Snyder and Patterson 1995). Social learning theory would indicate that responsiveness to noncompliance in the absence of responsiveness to compliance can be detrimental to socialization.

Considering the evolutionary development of compliance, Wahler (1997) makes an argument that regardless of theoretical model of compliance socialization, synchrony and responsiveness of parents are most responsible for the emergence of child compliance. Wahler (1997) suggests that the reinforcer and the subsequent parent–child interaction influence children's behavior. The interaction between parent and child may give the reinforcer additional value or meaning. Consistent responding on the part of parents will elicit consistent reciprocal responding by children through the matching law (Herrnstein 1974). All of the theoretical models proposed above support this concept that parents who consistently reward compliance and consistently do not reward (or punish) noncompliance will socialize those two child behaviors.

Consistent with the theoretical explanations above, we define reward as something that increases the likelihood of behavior and punishment as something that decreases the likelihood of behavior. We define praise as verbalizations meant to socially reward the recipient (i.e., increase the likelihood of recurrence). Consistent with Abramowitz et al. (1988) and Acker and O'Leary (1987), we define reprimands as brief, immediate, firm verbalizations meant to punish the recipient (i.e., reduce the likelihood of recurrence). Although reprimands do provide momentary attention, which can be reinforcing, this review focused on studies in which reprimands were brief and firm. Parent training programs typically combine negative parental responses with positive ones and encourage parents to give more attention for compliance than for noncompliance,

making attention more salient for compliance. Generally, the literature distinguishes reprimands from harsh or critical verbal utterances (e.g., Kuczynski and Kochanska 1990; Kuczynski et al. 1987; Reid et al. 1994). Harsh and critical utterances (e.g., yelling at child, insulting child) and physical discipline were omitted from this review. In addition to verbal consequences, parents also use nonverbal responses to influence child behavior. We define positive nonverbal responses as evolutionarily and developmentally significant cues of warmth or approval such as hugs, authentic smiles, and pats that may or may not occur with backup reinforcers such as earned privileges, materials rewards, or symbolic rewards (e.g., computer time, outdoor play, food, stickers, or money). We define negative nonverbal responses as evolutionarily and developmentally significant cues of threat or disapproval such as stern looks, crossed arms, and shaking head that may or may not occur with backup response costs such as loss of privileges, loss of points, or time-outs. Nonverbal positive responses and nonverbal negative responses each represent two qualitatively different classes of behavior. Hugs, smiles, and pats are signals of warmth demonstrated by a parent, whereas additional privileges and material/symbolic rewards are backup contingencies. Stern looks, crossed arms, and shaking head are cues of threat, whereas loss of privileges/points and time-outs are backup contingencies. Studies reviewed included positive nonverbal responses and negative nonverbal responses either alone or in combination with praise or reprimand, which is explicitly stated in this review. We define compliance as acting in accordance with a directive stated shortly before the child's action. We define noncompliance as not acting in accordance with a stated directive and/or not following rules.

For years, researchers, clinicians, and parents have debated the relative effectiveness of praise and reprimand in promoting child compliance. Some psychologists have argued that praise increases the likelihood of compliance (Eisenstadt et al. 1993; Eyberg and Robinson 1982; Jones 2003; Marchant et al. 2004; Matheson and Shriver 2005; Rheingold et al. 1987; Wahler and Meginnis 1997), whereas others have concluded that it decreases the likelihood of compliance (Kamins and Dweck 1999) or has no effect on compliance (Filcheck et al. 2001; Kochanska et al. 1997; Pintrich and Blumenfeld 1985; Roberts 1985). Psychologists have also debated whether reprimand helps to increase (Kuczynski and Kochanska 1990; Kuczynski et al. 1987; Schaffner 1985; Van Houten et al. 1982) or decrease (Webster-Stratton and Hammond 1998) the likelihood of compliance.[1] Parent training programs, the treatment of choice for behavior problems in young children (Brestan and Eyberg 1998), nearly universally include instruction in praise and reprimand based on the assumption that proper use of these techniques will improve compliance. Parenting programs also often teach parents to use positive and negative nonverbal responses. Kazdin and Klock (1973) have found teacher positive nonverbal behaviors to increase child attentive behavior in the classroom; however, we could not find a review of the effects of parent positive nonverbal behaviors, targeted in parent training, on child behavior. Time-out as defined by Scarboro and Forehand (1975) and clarified by Harris (1985) is consistently found to be an effective nonverbal means of reducing problem behavior (meta-analysis; Kaminski et al. 2008). The present systematic review seeks to clarify the relation of praise, reprimand, positive nonverbal consequences, and negative nonverbal consequences to child compliance.[2]

## Selection of Studies

For this review, four methods of literature retrieval were used to collect relevant studies published from 1970 to the present, during which time definitions of compliance and parental responses have remained fairly consistent. The primary means of gathering articles was by searching psychological databases including PubMed and PsycINFO. Keywords used were *parenting*, *compliance*, *child compliance*, *parent–child interaction*, *parent–child*

[1] Furthermore, a debate about the use of physical punishment in promoting child compliance has raged on in conjunction with the dispute over the relative effectiveness of rewards and punishments. Footnote 1 continued Larzelere has published two major reviews of the literature on physical versus non-physical punishment (Larzelere 2000; Larzelere and Kuhn 2005). This review specifically excludes physical punishment; however, Larzelere's position that negative consequences, and not positive consequences, are necessary to immediately decrease noncompliance is clearly relevant to the current review.

[2] Much research has been done on the effects of praise and reward on self-directed (intrinsically motivated) behavior. A few meta-analyses of the research (see Deci et al. 1999) have found that tangible rewards had an undermining effect on intrinsic motivation and that praise had a positive effect on interest in a task, but not on free choice behavior for children. Intrinsic motivation differs from compliance in that (a) intrinsic motivation is self-directed (based on an internal set of rules or desires), whereas compliance is other-directed (based on external stimuli); (b) intrinsic motivation focuses on what the child chooses to do; whereas compliance focuses on what others try to get the child to do; and (c) intrinsic motivation has been studied with the independent variables of tangible rewards and verbal rewards, whereas compliance has been studied (in this review) with the independent variables of tangible and intangible rewards combined into one category and verbal rewards. Thus, the outcomes of meta-analyses of the effects of praise and rewards on intrinsic motivation do not necessarily relate directly to the effects of praise and reward on compliance.

*relationship*, *praise*, *reward*, *punishment*, *criticism*, and *reprimand*. Once relevant articles were retrieved, we examined the reference sections to find other relevant articles. We also used the Social Sciences Citation Index to find articles written by specific authors who wrote other articles that were identified as relevant. Finally, we sent an email to a listserv of prominent behavioral parenting researchers informing them about the planned review; listing articles already collected; and asking if they could identify other published articles, dissertations, or unpublished studies that could be included in the current review. Of the data collection methods employed, the first and second proved the most fruitful, with the final two yielding a few additional articles. All studies reviewed in this paper were published in peer reviewed journals or were unpublished dissertations. Publication status did not influence interpretation of the results or how they impacted the conclusions of the review. Rather, other aspects of the research such as rigor of method and quality of detail presented were more influential in determining how the study was factored into the review's conclusions.

To be included in this review, studies had to measure compliance or noncompliance as well as praise, reprimand, positive nonverbal response, negative nonverbal response, or any combination of those parent responses (as defined above). Dissertations including measures of praise and/or reprimand and compliance or noncompliance were included. We considered studies that measured on-task or rule-following behavior and that required the child's on-going compliance with an initially verbalized rule or instruction to be beyond the scope of this review, and we excluded those studies. Also, excluded were studies that assessed time spent on a task, interest or enjoyment in a task, attention to a task, preference for a task, or engagement in an activity that was suggested or offered as a choice. We made this distinction because the impact of praise and reprimand may be different with respect to immediate compliance to directives as compared with ongoing compliance to rules. Further, it is unlikely that the latter can be achieved without the former, so we judged that the prudent place to begin. Studies were excluded if the parent variables were not defined in accordance with our definitions (above). To be included in this review, child compliance or noncompliance had to be the child variable studied. In a few studies reviewed, the child outcome variable studied was misbehavior. If the authors defined misbehavior as not responding to directives and not following rules, we considered the variable to be consistent with our definition of noncompliance and included the study in our review.

The type of assessment (observation, experimental manipulation, self-report) as well as person assessed (parent, experimenter) regarding the delivery of praise, reprimand, positive nonverbal response, and/or negative nonverbal response had to be clearly stated for the study to be included. Studies included in this review focus on children ages 1½–11 years, excluding adolescent samples (i.e., 12 and older). As our age inclusion involves a wide developmental range, the relation of child's age to the findings is discussed throughout the review to the extent possible. We included studies of children with disruptive or noncompliant behavior patterns, developmental delays, and learning disabilities, as well as children not identified as noncompliant. Children identified as having significant psychopathology aside from behavioral problems were excluded. Studies that included parents who had brain injuries, mental retardation, or significant psychopathology were excluded from the present study.

Of the 108 studies initially collected, 67 studies were excluded based on the criteria explained above and the remaining 41 studies were reviewed. Nineteen of the studies incorporated an experimental design, nine were parent training studies, seven of the studies used a naturalistic design (in home), and six studies used an observational design in the laboratory. One study included a self-report measure to assess parent and/or child behavior. Thirty-two of the studies included a measure of praise, 15 included a measure of positive nonverbal response, six of the studies included a measure of reprimand, and 14 included a measure of negative nonverbal response. Thirty-one studies measured compliance, seven studies measured noncompliance, one study measured delay to recurrence of noncompliance, and three studies looked at misbehavior as the child variable. We considered the authors' definitions of misbehavior to be consistent with our definition of noncompliance as explained above, so we included these studies (see Tables 1 and 2).

## Naturalistic Studies of Child Compliance

Naturalistic studies of parent behavior and child compliance include those in which experimenters watched parent–child interactions in naturalistic settings and reported on their observations. Feldman and Klein (2003) observed ninety 2-year-olds and their mothers at home during an up to 8-min clean-up task and found a positive association between maternal positive attention (i.e., praise, encouragement) during the task and child compliance ($r = .40$, $p < .01$).Webster-Stratton and Hammond (1998) observed 426 mothers and their 4-year-old Head Start children at home and found no difference in amount of praise and positive nonverbal responses (i.e., physical affection) during 30-min, unstructured parent–child interactions, regardless of frequency of noncompliance. A difference in mothers' discipline competence(which included appropriate limit setting and follow through with consequences)

**Table 1** Demographic information for participants and study characteristics and findings

| Study | *n* | Child age | Adult | Adult variables | Child variable | Type of study | Child label or diagnosis | Outcome |
|---|---|---|---|---|---|---|---|---|
| Bean and Roberts (1981) | 24 | 2–6 years | Parent | Time-out | Compliance | Experimental | Noncompliant | Greater compliance when parents gave a true time-out (parent tells child when time-out is over) compared with time-out controlled by child |
| Befera and Barkley (1985) | 60 | 6–11 years | Parent | Praise | Noncompliance | Observational behavior analog | Hyperactive (30) and not identified as noncompliant (30) | Hyperactive boys received more praise than boys not identified as hyperactive and hyperactive girls, and hyperactive boys were more noncompliant than children not identified as hyperactive |
| Bullock and Normand (2006) | 2 | 2–3 years | Experimenter | Praise and edible treats | Compliance | Experimental | Not identified as noncompliant | Greater compliance with low probability (of compliance) instructions with praise and positive nonverbal response |
| Cooke et al. (2011) | 422 | 4–6 years | Experimenter | Praise and stickers | Compliance | Experimental | Not identified as noncompliant | Greater compliance with positive nonverbal response than with praise or no response |
| Dennis (2006) | 113 | 3–4 years | Parent | Smiling, physical affection | Compliance | Observational behavior analog | Not identified as noncompliant | Positive nonverbal response predictive of compliance during free-play or waiting task |
| Dowling et al. (2009) | 40 | 20–31 months | Parent | Praise | Misbehavior | Observational behavior analog | Not identified as noncompliant | Amount of praise not predictive of misbehavior |
| Ducharme et al. (2003) | 4 | 4–7 years | Parent | Praise and pats, hugs | Compliance | Experimental | Diagnosed or at risk for developmental delays | No increase in compliance when praise and positive nonverbal response given without graduated request hierarchy |
| Eisenstadt et al. (1993) | 24 | 2.5–7 years | Parent | Praise and praise w/time-out | Compliance | Training | ODD or ADHD noncompliant | Greater increase in compliance with praise and negative nonverbal response than for praise only |
| Everett et al. (2005) | 4 | 4–9 years | Parent | Praise and pats | Compliance | Experimental | Noncompliant | Praise and positive nonverbal response led to increase in compliance over effective instructions alone |
| Eyberg, and Robinson (1982) | 7 | 2–7 years | Parent | Praise and time-out | Noncompliance, compliance | Training | Noncompliant | Training let to increases in praise and decrease in noncompliance and increase in compliance |
| Feldman and Klein (2003) | 90 | 2 years | Parent | Praise and encouragement | Compliance | Naturalistic | Not identified as noncompliant | Positive association between positive attention (praise and encouragement) and compliance |

**Table 1** continued

| Study | *n* | Child age | Adult | Adult variables | Child variable | Type of study | Child label or diagnosis | Outcome |
|---|---|---|---|---|---|---|---|---|
| Filcheck et al. (2001) | 30 | 3–5 years | Experimenter | Praise | Compliance | Experimental | Not identified as noncompliant (15) and noncompliant (15) | Greater compliance with nonenthusiastic description than with nonenthusiastic praise |
| Forehand and King (1974) | 8 | 3–6 years | Parent | Praise and time-out | Compliance | Training | Noncompliant | Training led to an increase in praise and compliance |
| Forehand et al. (1976), Exp. 1 | 32 | 4–6.5 years | Parent | Reprimand and crossed arms and stern stare | Compliance | Experimental | Not identified as noncompliant | Decrease in noncompliance for reprimand with negative nonverbal response |
| Forehand et al. (1976), Exp. 2 | 28 | 4–6.5 years | Parent | Reprimand and crossed arms and stern stare, ignoring, leaving room, combination of all three negative responses | Compliance | Experimental | Not identified as noncompliant | Greater decrease in noncompliance for reprimand with negative nonverbal response than for reprimand with leaving room, for reprimand with ignoring, or for combination of reprimand with all three negative responses |
| Humphreys et al. (1978) | 8 | 4–8 years | Parent | Praise and physical affection and time-out | Compliance | Training | Not identified as noncompliant | Training led to increases in praise and positive nonverbal response and in compliance |
| Hupp et al. (2008) | 28 | 52–56 months | Parent | Praise | Compliance | Naturalistic | 14 noncompliant, 14 not identified as noncompliant | No difference in amount of praise given, but noncompliant children were significantly less compliant |
| Jones (2003) D | 59 | 2.5–4 years | Parent | Praise | Compliance | Observational behavior analog | Not identified as noncompliant (Head Start) | Positive association between praise and compliance |
| Jones et al. (1992) | 3 | 4.5–5.5 years | Parent | Praise and time-out | Compliance | Experimental | Noncompliant (oppositional/ aggressive) | Immediate negative nonverbal response led to decrease in noncompliance; praise did not result in increase in compliance |
| Kuczynski and Kochanska (1990) | 51 (part of sample d) | 5 years | Parent | Reprimand | Compliance | Naturalistic (longitudinal) | Not identified as noncompliant | Positive association between reprimand in toddlerhood and compliance at age 5 |
| Kuczynski et al. (1987) | 70 | 15–44 months | Parent | Praise and reprimand | Compliance | Naturalistic | Not identified as noncompliant | Positive association between reprimand and compliance; no association between praise and compliance |
| Larzelere and Merenda (1994) | 40 | 25–38 months | Parent | Withdrawal of privileges, time-out | Delay to recurrence of noncompliance | Naturalistic (with self-report measure) | Not identified as noncompliant | Positive association between negative nonverbal consequences and delay to recurrence of noncompliance |

**Table 1** continued

| Study | *n* | Child age | Adult | Adult variables | Child variable | Type of study | Child label or diagnosis | Outcome |
|---|---|---|---|---|---|---|---|---|
| Lomas et al. (2010) | 3 | 8–9 years | Experimenter | Praise and small toy, edible treat | Compliance | Experimental | Autism spectrum disorder | Praise and positive nonverbal response given at variable time intervals resulted in increase in compliance |
| Marchant et al. (2004) | 4 | 4 years | Parent | Praise and edible treats, special time with parents | Compliance | Experimental | Noncompliant (Head Start), 3 with developmental delays | Training led to increase in compliance |
| Mash and Johnston (1982) | 96 | 3–7 years | Parent | Praise | Compliance | Observational behavior analog | Not identified as noncompliant (53) and hyperactive/ noncompliant (43) | Less praise and less compliance with noncompliant children compared to children not identified as noncompliant |
| McGilloway et al. (2012) | 149 | 2–7 years | Parent | Praise and physical affection | Misbehavior | Training | Not identified as noncompliant | No difference between use of praise and positive nonverbal response for mothers in the intervention and control conditions, but children in the intervention condition reduced misbehavior |
| McIntyre (2008) | 25 | 2–5 years | Parent | Praise and hugs, smiles | Misbehavior | Training | Developmental disabilities | Decrease in misbehavior following 12 sessions of parent training |
| Minton et al. (1971) | 90 | 27 months | Parent | Reprimand | Noncompliance | Naturalistic | Not identified as noncompliant | Noncompliance negatively correlated with mild reprimand |
| Peed et al. (1977) | 12 | 5 years | Parent | Praise and physical affection and time-out | Compliance | Training | Noncompliant | Training led to increases in reward and compliance |
| Reid et al. (1994) | 20 | 17–39 months | Parent | Reprimand and distraction | Noncompliance | Experimental | Not identified as noncompliant | Reprimands more effective than distraction to reduce noncompliance |
| Rheingold et al. (1987) | 12 | 18 and 24 months | Experimenter | Praise | Compliance | Experimental | Not identified as noncompliant | Stopping praise associated with decrease in compliance |
| Roberts (1982) | 24 | 2–6 years | Parent | Time-out and time-out w/praise | Compliance | Experimental | Noncompliant | Training led to increases in compliance with negative nonverbal response and negative nonverbal response with praise |
| Roberts (1985), study 1 | 57 (sample e) | 2.3–7 years | Parent and experimenter | Praise | Compliance | Observational behavior analog | Not identified as noncompliant (15) and noncompliant (42) | No association between compliance and responsiveness to maternal praise |
| Roberts (1985), study 2 | 20 (sample f) | 2.3–6.2 years | Parent and experimenter | Praise | Compliance | Experimental | Noncompliant | No difference in compliance when mothers praised and ignored |

**Table 1** continued

| Study | *n* | Child age | Adult | Adult variables | Child variable | Type of study | Child label or diagnosis | Outcome |
|---|---|---|---|---|---|---|---|---|
| Roberts and Hatzenbuehler (1981) | 29 | 2–7 years | Parent | Time-out and time-out w/praise | Noncompliance | Experimental | Noncompliant | Training of time time-out with and without praise led to decrease in noncompliance |
| Roberts et al. (1978) | 27 | 3–7 years | Parent | Time-out | Compliance | Experimental | Noncompliant | Training time-out led to increase in compliance |
| Roberts et al. (2008) | 4 | 3–6 years | Parent | Praise and pats, hugs, high fives | Compliance | Experimental | Noncompliant | Contingent praise led to a slight increase in compliance above effective instruction giving |
| Wahler and Meginnis (1997) | 36 | 6–8 years | Parent | Praise | Compliance | Experimental | Not identified as noncompliant | Association between praise and compliance through responsiveness |
| Ware et al. (2008) | 3 | 2–7 years | Parent | Praise | Compliance | Training | Noncompliant (aggressive/ disruptive behavior disorder) | Increases in praise during parent-directed interactions after parents learned PCIT |
| Webster-Stratton (1998) | 426 | 4 years | Parent | Praise and physical affection | Noncompliance | Training | Not identified as noncompliant (Head Start) | Training led to an increase in positive attention (praise and physical affection) and a decrease in noncompliance |
| Webster-Stratton and Hammond (1998) | 426 | 4 years | Parent | Praise and physical affection | Noncompliance | Naturalistic | Not identified as noncompliant and noncompliant (Head Start) | No difference post-training in praise and positive nonverbal responses for mothers of children identified as noncompliant and those not identified as noncompliant |

D after the author name(s) and date of a study indicates that it is an unpublished doctoral dissertation

**Table 2** Demographic information available for studies reviewed

| Study | *n* | Child age | Parent age | Income | Parent education | Race | Location (urban, rural) | Boys/girls |
|---|---|---|---|---|---|---|---|---|
| Bean and Roberts (1981) | 24 | 2–6 years | | | | | | |
| Befera and Barkley (1985) | 60 | 6–11 years | 24–49 years | | | | | 30 boys/30 girls |
| Bullock, and Normand (2006) | 2 | 2–3 years | | | | | | 100 % boys |
| Cooke et al. (2011) | 422 | 4–6 years | | | | | | 53 % boys/47 % girls |
| Dennis (2006) | 113 | 3–4 years | | $M$ = \$58,494 SD = \$28,277 | All college grads | 83 % Caucasian | Central Pennsylvania (small town) | 58 boys/55 girls |
| Dowling et al. (2009) | 40 | 20–31 months | 23–36 years | $M$ = 53.93 SD = 22.45 | $M$ = 14.13 SD = 1.98 | 100 % Caucasian | Long Island, New York (suburb) | |
| Ducharme et al. (2003) | 4 | 4–7 years | | | | | | 2 boys/2 girls |
| Eisenstadt et al. (1993) | 24 | 2.5–7 years | | $M$ = \$18,674 SD = 17,906 | | 88 % Caucasian | | 92 % boys |
| Everett et al. (2005) | 4 | 4–9 years | | | | | Southern Mississippi | 2 boys/2 girls |
| Eyberg and Robinson (1982) | 7 | 2–7 years | $M$ = 37 years (f), 27 years (m) | | $M$ = 13 years | | | 6 boys/1 girl |
| Feldman and Klein (2003) | 90 | 2 years | | Middle class | $M$ = 13.9 years | 100 % Israeli | Central Israel | 52 boys/38 girls |
| Filcheck et al. (2001) | 30 | 3–5 years | | | | 90 % Caucasian, 6.7 % Biracial, 3.3 % African American | | 86.7 % boys |
| Forehand and King (1974) | 8 | 3–6 years | | | | | | 5 boys/3 girls |
| Forehand et al. (1976), Exp. 1 | 32 | 4.5–6.5 years | | Middle and upper-middle class | | | Athens, Georgia | |
| Forehand et al. (1976), Exp. 2 | 28 | 4.5–6.5 years | | Middle and upper-middle class | | | Athens, Georgia | |
| Humphreys et al. (1978) | 8 | 30–128 months | | $M$ = Working class | | | | 100 % boys (target children), 7 girls and 1 boy (siblings) |

**Table 2** continued

| Study | *n* | Child age | Parent age | Income | Parent education | Race | Location (urban, rural) | Boys/girls |
|---|---|---|---|---|---|---|---|---|
| Hupp et al. (2008) | 28 | 52–56 months | | | | 64 % African American, 36 % White | | 50 % boys/50 % girls |
| Jones (2003) D | 59 | 2.5–4 years | $M = 29$ years | | | | Eugene, Oregon and surrounding towns | 36 boys/23 girls |
| Jones et al. (1992) | 3 | 4.5–5.5 years | | | | | | 2 boys/1 girl |
| Kuczynski and Kochanska (1990) | 51 (part of sample d) | 5 years | | Middle class | | 41 White, 6 Black | Washington, DC area | 27 girls/24 boys |
| Kuczynski et al. (1987) | 70 | 15–44 months | | Middle class | | 62 White, 8 Black | Washington, DC area | 34 girls/36 boys |
| Larzelere and Merenda (1994) | 40 | 25–38 months | | $M = \$34{,}500$ | 1/3 college degrees, 1/3 some college, 1/3 high school graduates (1 non-graduate) | 85 % White, 13 % Hispanic, 3 % Asian American | | 19 girls/21 boys |
| Lomas et al. (2010) | 3 | 8–9 years | | | | | | 100 % boys |
| Marchant et al. (2004) | 4 | 4 years | 20–49 years | Low to middle income | $M =$ High school | 100 % White | Utah | 1 girl/3 boys |
| Mash and Johnston (1982) | 96 | 3–7 years and 7–9 years | | Middle to upper-middle class | Graduated high school or some postsecondary schooling | | | 91 boys/5 girls |
| McGilloway et al. (2012) | 149 | 2–7 years | | Disadvantaged | | | 4 urban areas | 91 boys/58 girls |
| McIntyre (2008) | 25 | 2–5 years | $M = 33.56$ years SD = 5.34 years | | | 32 % < $35,000 years | 84 % some college | 96 % White |
| New York State | 23 boys/2 girls | | | | | | | |
| Minton et al. (1971) | 90 | 27 months | | | Less than 12 years to postgraduate training | | | 49 boys, 41 girls |
| Peed et al. (1977) | 12 | 5 years | | $M =$ middle class | | | | 8 boys, 4 girls |
| Reid et al. (1994) | 20 | 17–39 months | 23–39 years (M = 32.5 years) | $M = \$57{,}500$ | $M = 14.3$ years | | Long Island, New York | 12 boys, 12 girls |

**Table 2** continued

| Study | *n* | Child age | Parent age | Income | Parent education | Race | Location (urban, rural) | Boys/girls |
|---|---|---|---|---|---|---|---|---|
| Rheingold et al. (1987) | 12 | 18 and 24 months | | | $M = 17$ years | | Chapel Hill, North Carolina | 6 boys/6 girls |
| Roberts (1982) | 24 | 2–6 years | | | | | | |
| Roberts (1985), study 1 | 57 (sample e) | 2.3–7 years | | Mostly working-class families | | | Community surrounding Idaho State University | 40 boys/17 girls |
| Roberts (1985), study 2 | 20 (sample f) | 2.3–6.2 years | | | | | Community surrounding Idaho State University | |
| Roberts and Hatzenbuehler (1981) | 29 | 2–7 years | | | | | Community surrounding Idaho State University | |
| Roberts et al. (1978) | 27 | 3–7 years | | | | | | |
| Roberts et al. (2008) | 4 | 3–6 years | | | | 50 % African American, 50 % White | | 100 % boys |
| Wahler and Meginnis (1997) | 36 | 6–8 years | | | | | | |
| Ware et al. (2008) | 3 | 2–7 years | | | | 100 % White | | 2 boys/1 girl |
| Webster-Stratton (1998) | 426 | 4 years | $M = 29.42$ years | $M = \$10{,}000$ | | 63 % White, 17 % African American, 6 % Hispanic, 4 % Asian American, 4 % Native American, 6 % mixed | Puget Sound Head Start district, Washington | 224 boys, 202 girls |
| Webster-Stratton and Hammond (1998) | 426 | 4 years | $M = 29.42$ | $M = \$10{,}000$ | | 63 % White, 17 % African American, 6 % Hispanic, 4 % Asian American, 4 % Native American, 6 % mixed | Puget Sound Head Start district, Washington | 224 boys, 202 girls |

D after the author name(s) and date of a study indicates that it is an unpublished doctoral dissertation

was found such that mothers of children not identified as noncompliant were more competent compared with mothers of noncompliant children ($F(2, 416) = 11.52$, $p < .001$). Hupp et al. (2008) observed that 14 children identified as typically behaving (mean age 52 months) were more compliant than 14 children identified as noncompliant (mean age 56 months) over the course of a structured parent–child interaction based on the Parent Instruction-Giving Game with Youngsters (PIGGY) ($t(27) = 2.64$, $p < .01$). Mothers did not differ in the amount of praise that they gave during the interaction ($t(27) = -1.49$, ns).

Kuczynski et al. (1987) conducted two 90-min interactions in a naturalistic setting with seventy 1½- to 4-year-old children identified as noncompliant and their mothers. The experimenters observed no association between child compliance and praise when the dyads engaged in challenging tasks and free play ($r = -.04$, ns). The experimenters observed a marginally significant positive partial correlation (controlling for child age) between compliance and frequency of reprimand ($r = .18$, $p < .10$). Kuczynski and Kochanska (1990) later observed a subset of this sample ($N = 51$) when the children were 5 years old. At this later point, there was no association between compliance and frequency of reprimand during the 90-min naturalistic interaction between mothers and their children ($r = -.14$, ns). However, a multiple regression with frequency of reprimands as the independent variables and compliance as the dependent variable showed a positive relationship between reprimands in toddlerhood and compliance at age five ($R^2 = .26$, $p < .05$). Minton et al. (1971) observed ninety 27-month-old children and their mothers engaging in unstructured interactions at home. They found a negative correlation between frequency of mild verbal reprimands and noncompliance for both boys ($r = -.28$, $p < .05$) and girls ($r = -.33$, $p < .05$). Thus, when mothers gave more mild verbal reprimands, children were less noncompliant. Larzelere and Merenda (1994) had mothers of forty 25- to 38-month-olds complete self-report measures of discipline strategies, child responses, and child distress. Mothers reported that children who were highly distressed by negative nonverbal consequences (e.g., withdrawal of privileges, time-out) delayed recurrence of noncompliance longer than children with moderate or low levels of distress, and no distress ($p < .05$). Thus, when mothers applied negative nonverbal consequences and observed them to be highly meaningful (punishing), children were slower to not comply again.

### Laboratory Simulations and Trials

Laboratory simulations and trials include behavioral analog studies and experimental design studies in which parents or experimenters interact with children in a lab setting to observe or to manipulate and test the effect of different parenting behaviors on compliance. This section does not include parent training studies in which parents were trained to use a variety of behaviors both positive (i.e., praise, positive nonverbal response) and negative (i.e., reprimand, negative nonverbal response) over a series of sessions. Mash and Johnston (1982) observed that mothers of 3- to 7-year-old children identified as hyperactive/noncompliant ($n = 43$) gave less praise for compliance than did mothers of children not identified as noncompliant ($n = 53$) during structured tasks ($F(1,92) = 3.90$, $p < .05$). They also observed, compared to children not identified as noncompliant, that hyperactive/noncompliant children were less compliant ($F(1,92) = 10.17$, $p < .01$) and were less responsive (e.g., complying, interacting) to praise ($F(1,92) = 5.70$, $p < .05$). Befera and Barkley (1985) studied children between the ages of six and eleven, 30 identified as hyperactive (50 % were boys) and 30 identified as typically behaving (50 % were boys). The experimenters observed that mothers praised hyperactive boys significantly more than typically behaving boys and hyperactive girls during a compliance task ($F(3,56) = 5.6$, $p < .05$), despite hyperactive children complying significantly less than typically behaving children ($F(3,56) = 6.6$, $p < .05$). Dennis (2006) observed 113 mothers and their 3- to 4-year-old children not identified as noncompliant during a free-play task in the laboratory and found that amount of positive nonverbal response (e.g., smiling, physical affection) was predictive of child compliance ($F(7,105) = 4.00$, $p < .001$). In a laboratory behavioral analog, Jones (2003) observed 59 mothers and their 2½- to 4-year-old Head Start children identified as at risk. She found that praise was positively correlated with compliance during a 15-min, three-part structured interaction (child-led play, parent-led play, clean-up) ($r = .39$, $p < .01$). In another laboratory behavioral analog of a normative sample of 40 mothers and toddlers 20- to 31-month-olds, Dowling et al. (2009) did not find that amount of praise was predictive of child misbehavior in a hierarchical regression ($\beta = -.17$, ns). Roberts (1985) combined children identified as noncompliant and children not identified as noncompliant into one group of fifty-seven 2½- to 7-year-olds. Roberts (1985) found no association between compliance during the Compliance Test (Bean and Roberts 1981), a task in which commands are issued and compliance is measured, and later responsiveness (e.g., complying, interacting) to praise ($r = -.04$, ns). Roberts sought a correlation between child compliance to a task and compliance when praise was given and did not find one.

Filcheck et al. (2001), in post hoc comparisons, showed that thirty 3- to 5-year-old children complied more when they received a nonenthusiastic description of their

compliance ($M = 80.67$) during the Compliance Test (Bean and Roberts 1981) compared with nonenthusiastic praise ($M = 71.78$) for compliance ($p < .01$). No difference in their effects on compliance was found between the enthusiastic praise condition and either the nonenthusiastic praise or nonenthusiastic description conditions. Roberts (1985) conducted an experimental study with 20 noncompliant 2½- to 6½-year-olds and found no difference in the overall percentage of compliance for children who were praised and children who were ignored by their mothers immediately following compliance with mother-issued commands ($F(1,18) < .04$, ns). Roberts et al. (2008) found that teaching caregivers of four 3- to 6-year-old noncompliant boys' effective instruction delivery led to increases in compliance from baseline between 36 and 54 %. The addition of contingent praise for compliance (verbal praise and pats, hugs, high fives, etc.) resulted in additional small increases in compliance (10–15 %) for two of the participants. The authors did not report whether changes in compliance when contingent praise was added were significant above effective instruction delivery alone. Wahler and Meginnis (1997) taught mothers of thirty-six 1st, 2nd, and 3rd graders to use praise in response to compliance and found that praise was related to compliance ($r = .43$, $p < .01$). However, they concluded that it was maternal responsivity to children (i.e., giving attention and interacting) and not praise itself that resulted in more compliance; thus, caution is warranted when interpreting their finding about the relationship between praise and compliance. Marchant et al. (2004) taught parents of four 4-year-old children from a Head Start program identified as noncompliant and at risk for antisocial behavior problems (three of whom had developmental delays) to use effective and instructive praise and positive nonverbal responses (e.g., edible treats, special time with parents). The percentage of compliance increased dramatically from baseline (31 %) to the training phase (83.5 %). Compliance continued to increase slightly through the coaching phase (86 %) when parenting feedback continued and through the follow-up phase (91.25 %) when parents were reminded of and encouraged to use skills learned. Rheingold et al. (1987) observed that when experimenters ceased praising twenty-four 1½- to 2-year-old children for complying with commands, compliance decreased significantly ($F(1, 22) = 10.62$, $p < .004$). It is of note that during the no praise condition (which came sequentially after the praise-with-explicit-commands condition), commands were not stated but were implied by the experimenter. The difference in the nature of the commands (explicit versus implicit) may have also influenced child behavior in this study. In a study of 422 children not identified as noncompliant between 4- and 6-year olds, Cooke et al. (2011) found a difference in amount of compliance to eat a vegetable rated as slightly undesirable when children were given a positive nonverbal response (i.e., a sticker), praised, or not reinforced ($\chi^2(2, 310) = 25.67$, $p < .001$). Post hoc comparisons found that amount of compliance was greater when children received a positive nonverbal response compared with praise or no reinforcement. Everett et al. (2005) looked at effective instruction giving, eye contact, and contingent praise with four 4- to 9-year-old children identified as noncompliant. Compared with effective instruction delivery alone, when caregivers added contingent praise for compliance (i.e., praise and pats on the back) to effective instruction delivery and eye contact, children complied between 20 and 42 % more.

In a study by Reid et al. (1994) of twenty 17- to 39-month-old children and their mothers, children were noncompliant less of the time when mothers used reprimand than when mothers used distraction in response to noncompliance ($t(19) = 2.24$, $p < .02$). Children demonstrated significantly less noncompliance when mothers responded with reprimand regardless of whether mothers were instructed to use reprimand first and distraction second ($t(19) = 3.45$, $p < .001$) or distraction first and reprimand second ($t(19) = 2.61$, $p < .05$). Forehand et al. (1976) studied thirty-two 4- to 6½-year-olds and their mothers and found that reprimand combined with negative nonverbal response (i.e., crossed arms and a stern stare) resulted in less noncompliance than did repeated commands ($F(1,28) = 5.29$, $p < .05$). In a second study of 28 mothers and their 4- to 6½-year-olds, reprimand combined with negative nonverbal response (i.e., crossed arms and a stern stare) resulted in less noncompliance than other negative maternal responses (i.e., leaving room, ignoring) did at post-training ($F(3,24 = 4.24$, $p < .05$). Newman–Keuls post hoc analyses showed that reprimand combined with negative nonverbal response resulted in less noncompliance than the mother leaving the room and the mother alternating among negative nonverbal response (i.e., crossed arms and stern stare), leaving the room, and ignoring ($p < .05$).

Roberts et al. (1978) found that twenty-seven 3- to 7-year-olds identified as noncompliant increased compliance to commands from baseline (35.01 %) to post-training (83.3 %) when mothers enforced time-out ($q(2,24) = 16.7$, $p < .01$). Bean and Roberts (1981) taught mothers of twenty-four 2- to 6-year-olds identified as noncompliant to put their child in time-out following noncompliance and either allow their child to decide when to rejoin the activity (child release) or tell their child when the time-out was over (parent release). The authors found a significantly greater increase in compliance for children in the parent release condition compared with children in the child release condition ($F(2,21) = 13.4$, $p < .01$). The mean number of time-outs resulting from noncompliance was

greater for children in the child release condition compared with children in the parent release condition ($t(14) = 3.4$, $p < .01$). Roberts (1982) trained 24 parents of 2- to 6-year-olds identified as noncompliant to use time-out in response to noncompliance in three conditions: no-warn (i.e., children put into time-out immediately for not complying), warn (children warned of time-out for non-compliance), and warn and praise (children warned of time-out for noncompliance and praised for compliance). The mean compliance across all groups increased from 33.5 % at baseline to 78.5 % during treatment, with no differences among the conditions. Roberts and Hatzenbuehler (1981) observed twenty-nine 2- to 7-year-olds identified as noncompliant during a compliance task and found a decrease in mean percentage of noncompliance from baseline (71.7 %) to the experimental conditions (20.5 %) in which time-out was used (with and without praise). Jones et al. (1992) taught mothers of three 4½- to 5½-year-olds identified as oppositional and aggressive either to give a warning for noncompliance (specifically, aggression toward their sibling) and then react with a time-out for continued noncompliance or with praise for compliance, or to give an immediate time-out for noncompliance. The authors reported that incidents of aggression toward siblings decreased when mothers put children immediately into time-out for noncompliance. Incidents of aggression toward siblings did not decrease when children were given delayed time-outs or praise for compliance.

Studies of applied behavioral analysis have sought to use reinforcement and consequences to reduce problem behavior and increase compliance in children identified as having developmental delays. Ducharme et al. (2003) did not find an increase in overall compliance when parents of four 4- to 7-year-old children at risk or diagnosed with developmental disabilities used praise and nonverbal positive responses (e.g., pats, hugs) following compliance with a parental request. The authors did find an increase in overall compliance when praise and nonverbal positive responses were used along with a graduated request hierarchy, beginning with high-likelihood-of-compliance requests. Lomas et al. (2010) explored giving praise and nonverbal positive responses (e.g., toy car, edible treat) at variable time intervals (within a 10 s time range) to three children between 8 and 9 years old identified as having Autism Spectrum Disorders. The authors found a reduction in problem behaviors from a mean of three per minute at baseline to near zero when reinforcement was added, as well as an increase in compliance ranging from 16 to 40 % for the three children. Using a similar design, Bullock and Normand (2006) compared frequency of compliance of two 2- to 3-year-old typically developing children not identified as noncompliant. The authors found that children complied more with low probability (of compliance) instructions when praise and positive nonverbal responses were presented on a fixed time interval (84 and 100 %) compared with when praise and positive nonverbal responses were contingent upon compliance with instructions (40 and 81 %). In both conditions, the presentation of praise and positive nonverbal responses (i.e., edible treats) resulted in greater compliance with low probability instructions compared to baseline when no reinforcement was given (15 and 58 % compliance).

## Parent Training and Prevention Research

Parent training and prevention studies include studies in which parents and children engage in multiple-session training on several behaviors to reduce or prevent problematic child behavior. The studies in this section were designed as efficacy studies. The studies in the above section sought to identify the impact of specific components that might be included in an intervention efficacy trial. Humphreys et al. (1978) tested the effect on siblings (ages 2½–10½) of training mothers to reward compliance and give time-out for noncompliance with eight 4- to 8-year-old male children identified as noncompliant. The percentage of praise and nonverbal positive response (i.e., physical affection) given by mothers in response to sibling compliance increased from pre- to post-treatment ($p < .05$), as did sibling compliance ($t(2) = 6$, $p < .05$). The authors did not report on changes in time-out. Peed et al. (1977) taught 12 mothers to use praise and positive nonverbal responses (i.e., physical affection) for compliance and to use time-out for noncompliance with their 3- to 9-year-old children identified as noncompliant. They found increases for the treatment group from pre- to post-treatment during a laboratory interaction for positive responses ($t(10) > 2.76$, $p < .01$) and for compliance ($t(10) > 2.76$, $p < .01$). During home interactions, the treatment group demonstrated significant increases from pre- to post-treatment for positive responses ($t(10) > 2.76$, $p < .01$) and for compliance ($1.81 < t(10) < 2.76$, $p < .05$). The authors reported that time-outs were used too infrequently for statistical analyses to be meaningful. Forehand and King (1974) taught parents of eight 3- to 6-year olds to praise compliance and to warn about time-out (and then deliver, if necessary) for noncompliance. They found an increase in the percentages of child compliance with commands (43–81 %, $p < .05$) and of parental praise in response to child compliance (45–89 %, $p < .05$) from pre- to post-training during the time-out phase. The investigators did not report frequency of time-outs. Follow-up data from two families demonstrated consistent findings, indicating generalization from laboratory to home. Eyberg and Robinson (1982) taught mothers of seven 2- to 7-year-olds with

active behavior problems (including aggression, destruction, hyperactivity, and disobedience) to give clear directives, to praise compliance, to support and pay attention to children, and to ignore or use time-out in response to misbehavior. Eyberg and Robinson found an increase in praise from pre- to post-training during the parent-directed interaction ($t(6) = -6.98$, $p < .001$) and the child-directed interaction ($t(6) = -5.50$, $p < .01$). They also found an increase in compliance ($t(6) = -8.00$, $p < .001$) and a decrease in noncompliance ($t(6) = 7.56$, $p < .001$) from pre- to post-training. The authors did not report on changes in time-out.

Eisenstadt et al. (1993) taught parents of twenty-four 2½- to 7-year-olds to either use praise for compliance and use time-out for noncompliance or to only use praise for compliance over the course of 14 sessions. The authors measured child compliance at the midway point in training and found greater improvements in compliance for children of parents who had learned to use praise and time-out by this point than for children of parents who only learned to use praise ($F(1, 22) = 8.85$, $p = .01$). At the end of training, when both groups of parents had learned to use praise for compliance and time-out for noncompliance, improvements in compliance were comparable for both groups ($t(23) = 7.3$, $p < .001$). Ware et al. (2008) found that when parents of three 2- to 7-year-old children identified as having behavior problems learned Parent Child Interaction Therapy (PCIT, Hembree-Kigin and McNeil 1995) entirely in their home, contingent praise increased during child-directed interactions (CDI) and during parent-directed interactions (PDI). Increases in child compliance from baseline to parent-directed interaction (with an intermediate period of CDI) ranged from 34 to 80 %. Increases in contingent praise and compliance were maintained at 1-month follow-up.

Webster-Stratton (1998) conducted a parent training study using an abbreviated version (eight to nine sessions) of the Incredible Years parent training program that included elements of praise and positive attention, limit setting, and handling misbehavior with time-out, ignoring, removing privileges and other non-violent discipline strategies with 394 Head Start children between 4 and 5 years old not identified as noncompliant. For the 246 families in the intervention condition, Webster-Stratton found an increase from pre- to post-training in maternal use of positive attention (praise and physical affection) in response to compliance ($t(245) = 7.72$, $p < .001$) and a decrease in child noncompliance ($t(245) = -6.35$, $p < .001$). Changes were maintained at 1-year follow-up for increased use of positive attention ($t(188) = 4.91$, $p < .001$) and decreased noncompliance ($t(188) = -4.55$, $p < .001$). Improvements in appropriate limit setting and discipline were found immediately at post-treatment ($t(245) = 6.83$, $p < .001$) and at 1-year follow-up ($t(188) = 4.24$, $p < .001$) for families in the intervention condition, but the authors did not distinguish between which limit-setting and disciple strategies were used. McIntyre (2008) explored the efficacy of using the Incredible Years parent training program with 25 families of 2- to 5-year-olds with developmental disabilities. Following completion of the 12 sessions, McIntyre found a small increase for appropriate praise and nonverbal positive responses (e.g., hugs, smiles) ($t(24) = -1.36$, $p < .10$) and a significant decrease in misbehavior ($t(24) = 1.70$, $p = .05$). McGilloway et al. (2012) used the 14-session Incredible Years BASIC parent training program with 149 disadvantaged families of 2- to 7-year-olds and did not find a difference between mothers' use of praise and positive nonverbal responses (e.g., physical affection) at 6-month follow-up for mothers in the intervention condition ($n = 103$) compared with mothers in the waitlist control condition ($n = 46$) ($F(1,147) = 2.5$, *ns*). However, children in the intervention condition compared with children in the control condition demonstrated significantly less misbehavior at 6-month follow-up ($F(1,147) = 18.0$, $p < .001$). The authors did not report on maternal use of reprimand or negative nonverbal responses (e.g., time-out) following training.

## Conclusions

We set out to clarify the relationship between child compliance and parental praise, positive nonverbal responses, reprimand, and negative nonverbal responses. Reviewing the literature, we found that reprimand and negative nonverbal responses are associated with compliance in naturalistic studies (Kuczynski and Kochanska 1990; Kuczynski et al. 1987; Larzelere and Merenda 1994; Minton et al. 1971). Reprimand and negative nonverbal responses consistently result in greater compliance in experimental/training studies (Forehand et al. 1976; Jones et al. 1992; Reid et al. 1994; Roberts 1982; Roberts and Hatzenbuehler 1981; Roberts et al. 1978). Parent training studies reviewed that included reprimand and/or negative nonverbal responses as part of a more comprehensive training package consistently found increases in child compliance (Eisenstadt et al. 1993; Eyberg and Robinson 1982; Forehand and King 1974; Humphreys et al. 1978; McIntyre 2008, McGilloway et al. 2012; Peed et al. 1977; Ware et al. 2008; Webster-Stratton 1998). The parent training literature touts brief, firm reprimands as a way to reduce noncompliance without being harsh or giving too much attention to the child (Abramowitz et al. 1988; Forehand and Long 2002; Pfiffner and O'Leary 1989;

Webster-Stratton 2003). In this review, we only included studies that specified that reprimands and negative nonverbal responses were not delivered in a harsh or highly punitive manner. Harsh verbalizations are not an effective means of decreasing noncompliance and can increase child distress (e.g., Chamberlain and Patterson 1995; Scaramella et al. 2008). Negative nonverbal responses included in the literature reviewed are signals of negative emotion (e.g., stern looks, crossed arms) and backup contingencies (e.g., removal of privileges, time-out). Both of these types of negative nonverbal responses were related to increased compliance in all of the studies reviewed.

The differences in compliance or noncompliance found in these studies—with the exception of Kuczynski and Kochanska (1990)—suggest that reprimands are associated with decreases in noncompliance and increases in compliance for children. The findings from these studies do not seem to be related to age or clinical status of the samples. The effects of reprimand and negative nonverbal responses on compliance are immediate and occur regardless of the addition of praise or positive nonverbal responses. Overall, reprimands and negative nonverbal responses appear to be important components of child socialization by increasing compliance and decreasing noncompliance in the short-term. The operant conditioning-based hypothesis that reprimands function as punishers and therefore decrease noncompliance for most children is consistent with the findings of this review. If the reprimand serves as a punisher that is more powerful than the inherently rewarding quality of noncompliant behavior, then the reprimand may help reduce noncompliance and increase compliant behavior. By functioning as more punishing than noncompliance is rewarding, reprimand and negative nonverbal responses work immediately to increase compliance. Furthermore, if negative responses are delivered quickly and consistently, children learn the contingency and can behave appropriately to the benefit of both the parent and the child.

From the literature reviewed, it appears that the relationship of praise and positive nonverbal responses to compliance is more complicated than that of reprimands and negative nonverbal responses to noncompliance. The mixed findings regarding the effects of praise on compliance for children in general are unexpected and inconsistent with the operant conditioning- based hypothesis that praise generally functions as a reward thereby serving to increase the praised behavior. However, praise can only be a reinforcer if repeatedly paired with something naturally reinforcing enough to make it a reinforcer on its own. Thus, in the studies that focus on praise in isolation as a single parenting behavior, there may not be a paired natural reinforcer to give praise enough value to reinforce compliance.

The effect of praise appears to be less immediate than the effect of reprimand, as evidenced by the lack of a consistent connection between praise and compliance in the literature. Observational studies of the relationship between praise and compliance in both clinical and nonclinical samples have not demonstrated a reliable link between the two variables (Befera and Barkley 1985; Hupp et al. 2008; Kuczynski et al. 1987). Two studies reviewed found significant positive correlations between praise and compliance in nonclinical samples (Feldman and Klein 2003; Jones 2003). Two other studies found no relationship between praise and compliance in a mixed sample (Mash and Johnston 1982) and in a nonclinical sample (Dowling et al. 2009). In experimental studies of praise and compliance, praise has resulted in greater compliance in nonclinical samples (Rheingold et al. 1987; Wahler and Meginnis 1997), but not in clinical samples (Filcheck et al. 2001; Roberts 1985, study 1 and study 2). Furthermore, other factors, such as maternal responsivity, have been thought to better account for the relationship found between praise and compliance (Wahler and Meginnis 1997). Additionally, praise may function differently for children identified as noncompliant as compared with children not identified as noncompliant (e.g., Mash and Johnston 1982). In the naturalistic and experimental studies that found an association between praise and compliance, the samples mostly consisted of children not identified as noncompliant, whereas in studies that did not find an association between praise and compliance, the samples consisted of children identified as noncompliant or mixed samples. It could be that there are fewer positive interactions overall between parents and children identified as noncompliant. Fewer positive interactions might mean that noncompliant children receive less reinforcing positive attention from parents for compliance. Parents of noncompliant children can learn to increase the amount of positive interactions with their children as evidenced by the efficacy of training programs that teach parents several behaviors, including giving positive attention for good behavior. Because parent training studies find increases in compliance, positive attention paired with praise and other reinforcing parenting behaviors may encourage compliance. Positive attention may be the active ingredient that makes praise reinforcing and meaningful.

Positive attention is implicit in one type of positive nonverbal responses reviewed (emotionally valenced cues) and frequently coupled with the other type of positive nonverbal responses reviewed (backup contingencies). All observational and experimental studies found an association between positive nonverbal responses and compliance regardless of clinical status of the sample with the exception of Webster-Stratton and Hammond (1998). In some of these studies, the positive nonverbal responses were

emotional cues, including smiles, hugs, pats, and other physical affection (Dennis 2006; Everett et al. 2005; Roberts et al. 2008). In other studies, the positive nonverbal responses were backup contingencies, including edible treats, stickers, and bonus time (Bullock and Normand 2006; Cooke et al. 2011; Lomas et al. 2010; Marchant et al. 2004). Child compliance increased when parents and experimenters gave positive nonverbal responses, regardless of whether the responses were emotional cues or backup contingencies. Both of these positive responses may provide children with enough benefit to be impactful. Without the added positive attention or reward of positive nonverbal responses, praise alone may not be substantial enough to motivate children to comply. Ducharme et al. (2003) found that praise and emotional cues only increased compliance when children were initially presented with high-likelihood-of-compliance tasks. Thus, tasks with high-likelihood-of-compliance may require less positive attention to motivate children to act than tasks with lower likelihood of compliance. The more children complied in Ducharme et al.'s (2003) study, the more praise and physical affection they received, increasing positive attention and momentum for continued compliance. Training studies that included praise and positive nonverbal responses as part of a more comprehensive training package consistently reported increases in both parent behaviors and compliance (Eyberg and Robinson 1982; Humphreys et al. 1978; Forehand and King 1974; Marchant et al. 2004; Matheson and Shriver 2005). As positive parenting behaviors increase over the course of training, the added positive attention and reward to children may account for the increase in compliance. Findings about praise and positive nonverbal responses did not appear to vary by age of the sample as children's ages ranged from young (1½ years) to older (10½ years) for studies that found an association with compliance and those that did not.

A general pattern of positive parenting behavior comprises a number of elements related to praise including responsiveness, warmth, and positive affect (Katz and Gottman 1997; Wahler and Meginnis 1997; Webster-Stratton and Hammond 1998). These may be the components of positive attention that, when paired with praise, make praise reinforcing for a child. Maternal responsiveness, warmth, and positive affect have all been linked to increased compliance (Baumrind 1972, 1991; Chamberlain and Patterson 1995; Chen et al. 2005; Davis et al. 2001; Harrist et al. 1994; Kochanska et al. 1995; Lytton 1982; MacDonald 1992). Wahler and Meginnis (1997) found that teaching parents to use praise led to an increase in responsiveness that they explained accounted for the increase in compliance. Responsiveness, warmth, and positive affect have been induced by the child-directed interaction component in PCIT (e.g., Eyberg and Robinson 1982) and by behavioral momentum in errorless compliance training (e.g., Ducharme et al. 2003). PCIT and errorless compliance training can help teach parents to use emotional cues, including warmth and positive affect, to increase compliance. Based on the reviewed literature, emotional cues appear to enhance praise by adding elements of positive valence to the statements, which may make praise rewarding for children. Backup contingencies can also be paired with praise to add reward value thereby making praise impactful. Emotional cues and backup contingencies both serve important purposes when paired with praise to add meaningfulness to the verbalizations. Repeated pairings of these positive nonverbal responses with praise can make praise itself a reinforcer. Because parenting occurs in the context of an ongoing stream of parent and child interactions, over time positive parent responses are likely to elicit reciprocal effects in children, manifesting as compliance (Bell 1979; Kochanska and Aksan 2004; Kochanska et al. 2004; Maccoby 1999; Parpal and Maccoby 1985).

In addition to encouraging compliance from children, positive parent responses have been shown to have an even greater overall impact on the parent–child relationship. In their longitudinal study of language development and parent–child interactions, Hart and Risley (1995) found that positive feedback, responsiveness, and diversity of language experienced during their first few years of life accounted for children's later academic and personal successes. When parents use warm control strategies (as parent training programs teach), children may display greater self-regulated compliance (Feldman and Klein 2003; Stayton et al. 1971) as a result of reciprocal responsiveness. Wahler et al. (2001) observed that mothers gave attention to children's prosocial approach behaviors, which were subsequently related to greater compliance. Children who are compliant tend to elicit more warmth from their mothers (Kochanska 1997), creating a positive behavior cycle and increasing security of attachment. Conversely, parent–child relationships characterized by less reciprocal responsiveness have been associated with greater levels of noncompliance in studies of children identified as noncompliant (Deater-Deckard and Petrill 2004; Gardner and Ward 2000; Kochanska and Murray 2000). Compliance may be further reinforced by improved parent–child rapport, reduced negative/hostile interactions, and increased safety/structure within the parent–child relationship. Responsiveness of parents may create synchrony within the parent–child relationship, as proposed by Wahler (1997), resulting in appropriately compliant behavior and later achievement by children (Hart and Risley 1995). Thus, parental use of praise paired with positive nonverbal responses may be an important means of increasing reciprocal responsiveness between parent and child, resulting in a more positive relationship and greater compliance over time.

Some other mechanisms that might account for the lack of immediate effectiveness of praise to consistently increase compliance, especially among more noncompliant children, have been proposed. Cannella (1986) and Faber and Mazlish (1995) have warned that praise may be perceived by children as a controlling evaluation. Perception of praise as controlling rather than supportive may be especially problematic for oppositional-defiant and conduct-disordered children (Gomez and Gomez 2003; Rey and Plapp 1990). Baumeister et al. (1990) found that praise can increase self-consciousness, which may in turn be distracting for children. Increased self-consciousness may be especially problematic for anxious children (Mor and Winquist 2002). In terms of motivation in children, praise has also been observed to decrease risk taking and autonomous behavior (Gordon 1989), decrease motivation for easy tasks (Barker and Graham 1987; Weiner 1985), and decrease prosocial behavior (Grusec 1991) compared with non-praised activity. These findings indicate that praise may negatively impact motivation to comply. Although praise is often viewed as a positive parenting behavior, praise alone has the potential for certain negative effects. The findings that parental praise is not always experienced as rewarding by children may help explain why praise may not increase compliance in the short-term, especially for clinical populations.

Researchers often partition parenting behaviors to study their unique effects; however, in reality, parenting behaviors such as praise, positive nonverbal responses, reprimand, and negative nonverbal responses do not exist in isolation. Findings from studies comparing praise and/or positive nonverbal responses, reprimand and/or negative nonverbal responses, and the combination of positive and negative responses indicate that reprimand and negative nonverbal responses alone may be as effective but not more effective than the combination of negative responses (reprimand and negative nonverbal responses) and positive responses (praise and positive nonverbal responses). Positive and negative responses may work together in parent–child interactions. This is an important finding because if greater levels of compliance contribute to improved mutual responsiveness of the parent–child relationship, then increasing compliance is highly important. Critics of reprimand and negative nonverbal responses express concern that these behaviors are deleterious to the child and the parent–child bond. However, if greater child compliance increases parental warm discipline and greater warm discipline improves the responsiveness of children to their parents, then increasing compliance using reprimand and negative nonverbal responses can be beneficial, rather than harmful, to children and parents. It is important to note that neither reprimands nor negative nonverbal responses as described in this review are harsh punishments. Improved compliance may reduce the likelihood of a parent using harsh punishment when they become overwhelmed by their child's misbehavior. Furthermore, compliance is extremely important for child safety. By complying with parents' warnings, children can avoid danger caused by hazardous and physically unsafe conditions. Increased compliance results in children heeding their parents to make good choices regarding health (e.g., taking medicines and vitamins, eating healthfully) and safety (e.g., wearing seatbelts, crossing streets carefully, not touching chemicals). Using appropriate reprimands and negative nonverbal responses to increase compliance and using praise and positive nonverbal responses to maintain compliance by developing mutual responsiveness appear to be the way that these behaviors work to create a successful parent–child relationship.

## Limitations

There are a few limitations of the research included in this review. The present review only addresses a few parenting behaviors that can encourage compliance from a much larger menu of behaviors. Although teaching parents to use praise may be a fairly straightforward aspect of most training packages, using praise can be challenging for parents who feel like praise may spoil children or who are usually negative or abusive toward their children. Helping clinicians and parenting experts effectively teach these parents how to use praise in conjunction with other positive responses would be useful. Generalizability is limited in the present review by a lack of comparison of demographic factors between the studies, due to incompleteness of such information in the studies reviewed. Evaluations of cultural and ethnic differences in use of and in response to praise, reprimand, and child compliance should be considered in future research, as it would be useful information for clinicians and parent training experts.

Compliance and noncompliance are the only child variables examined in the present review. Yet, compliance is only one of many qualities that are shaped throughout socialization. High levels of compliance might be maladaptive in some circumstances. One could imagine that if a child were raised to be highly compliant, a caregiver or person in a position of authority relative to the child (e.g., a babysitter) might be able manipulate that child to partake in dangerous or illicit activities like selling drugs or stealing. High levels of compliance may also be a sign of an anxious response to overly involved parents or fear response to abusive parents. However, reasonably high rates of compliance are typical of normally functioning children and are necessary for good adjustment at home and in school.

The review also lacks a definitive conclusion about the effects of praise and reprimand and nonverbal responses on compliance over the long term because follow-up assessments of compliance were seldom included in the studies reviewed. Of the 41 studies included in this review, only the parent training studies and Kuczynski and Kochanska (1990) included a post-treatment and/or follow-up measure of compliance, and these studies were not designed to contrast the impact of the different strategies. Extending findings of studies on compliance by looking at the impact at a future time would further our understanding of both the short- and long-term influence of parenting behaviors on compliance.

## Future Research

Parent training programs that seek to increase both immediate and continuous compliance might benefit from future research to better isolate the roles of praise and positive nonverbal responses. Children's compliant response when praised should be empirically tested to determine whether (a) praise leads to reciprocal responsiveness and enhances the positivity of the parent–child atmosphere and (b) reciprocal responsiveness and more positive atmosphere result in an association between praise and compliance. To determine whether positive attention is the active ingredient that makes praise reinforcing, more research comparing praise with and without positive attention is warranted. Positive attention involves several types of positive nonverbal responses including smiling, physical affection, and engagement. Each of these behaviors could be studied on their own to better explain the cumulative versus independent effects of each. Combining negative and positive parenting responses may be essential to produce desired compliant outcomes. It may be that positive atmosphere created by the reciprocal responsiveness of parent and child serves as a necessary context within which reprimands operate as punishers. Longitudinal studies, both naturalistic and experimental, would allow researchers to better explain how positive parental responses and negative parental responses function to increase compliance and to support mutual responsiveness.

Although corporal punishment and criticism are related to negative outcomes in children (e.g., Gershoff 2002; Lytton and Zwirner 1975) and reprimand is related to compliance (e.g., Forehand et al. 1976; Minton et al. 1971), there is still a tendency to lump them together, which seems inappropriate. Researchers and clinicians would benefit from a clearer distinction of child responses to reprimand and time-out versus corporal punishment and harsh criticism. A better understanding of the impact of individual parenting behaviors on compliance may help parents to respond to their children in a manner that maximizes compliance.

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