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A REVIEW OF BEHAVIORAL CONCEPTUALIZATIONS AND TREATMENTS OF CHILD NONCOMPLIANCE

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ABSTRACT

This article reviews behavioral conceptualizations and approaches to the treatment of child noncompliance. This includes discussion of behavioral definitions and methods of assessment, generalization of treatment effects, future research directions, and potential ethical concerns in treating childhood noncompliance.

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A child's failure to follow a specific command, or a failure to follow a parent command that specifies a measurable motor behavior, has been termed noncompliance (Forehand, Gardner, & Roberts, 1978; Koch, 1982). The behavior therapy literature clearly indicates that noncompliance is an important and common problem. Taplin and Reid (1977) noted that 96% of parents of referred children reported noncompliance to be a problem. Forehand and King (1977), in a study of deviant children, reported that noncompliance occurred in 57% to 80% of the total opportunities for compliance; while Johnson, Wahl, Martin, and Johansson (1973) found noncompliance to occur during only 25% of the opportunities for compliance in normal children (cited by Green, Forehand, & McMahon, 1979).

Definition and Conceptualization of Noncompliance

Defining Noncompliance

In 1977, Forehand established many of the standards for defining noncompliance. He found that compliance norms for normal, nonclinic children varied

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Pages 56–77

from 60% to 80%, nearly the same as that reported for referred children (Forehand & King, 1977). Forehand suggested that children complying to requests less than 60% of the time be considered clinically noncompliant. Roberts and Powers (1988) have suggested that these norms and standards may need revision.

Forehand (1977) noted that the many different definitions of compliance make it difficult to compare treatments and assess the importance of subject characteristics. Noncompliance has been variously defined as a failure to initiate a specified motor response within 5 seconds of a command (Roberts & Hatzenbuehler, 1981) and within 15 seconds of a command (Glass, 1988; Schutte & Hopkins, 1970), and as a failure to complete a specific behavior within 10 seconds (Neef, Shafer, Egel, Cataldo, & Parrish, 1983), within 20 seconds (Parrish, Cataldo, Kolko, Neef, & Egel, 1986), and within 30 seconds (Goetz, Holmberg, & LeBlanc, 1975) of a command. Hamlet, Axelrod, and Kuerschner (1984) varied their definition of noncompliance dependent upon the request being made. Most commonly noncompliance refers to failure to follow a request made by a parent.

Latency of task initiation and task completion in compliance with a command has also been studied (Stiffman, 1983). Stiffman found that typical latencies often exceeded the time used to define noncompliance in many studies. Some recent authors have defined noncompliance as exceeding 20 seconds for initiation (e.g., Parrish et al., 1986). Clearly, there is a need for additional investigations of the temporal aspects of defining compliance. To complicate matters, there are developmental (age-related) differences noted in the literature (Roberts & Powers, 1988; Webster-Stratton, 1983). These factors suggest the importance of investigators explaining their choice of measurement or latency criteria.

Several studies have indicated that noncompliance is partly a function of age (Roberts & Powers, 1988; Webster-Stratton, 1983; Wilson, 1983). Webster-Stratton (1983) noted a peak in noncompliance in 2- to 3-year-old children, and a subsequent decrease by age 5. Roberts and Powers (1988) found a linear correlation between age and compliance, with children between 2 and 4 years old much more likely to be noncompliant than children 4 to 7.2 years of age according to Forehand's (1977) standard (less than 60% compliant).

Conceptual Approaches to Noncompliance

The approaches discussed in this paper are behavioral. Most assume that deviant child behavior is usually, at least in part, a function of the child management behaviors of parents. Therefore, one way to improve children's behavior is to provide parent education and/or training (Wahler & Dumas, 1984). Patterson and Forehand have published extensive theoretical and empirical papers on noncompliance and its treatment based on this concept. We will now review these conceptualizations.

The Coercive Cycle Hypothesis. Utilizing several procedures that target more than one behavior at a time, Patterson's program, first described in 1974, has concentrated on the general reduction of child deviance (Patterson, 1974). Patterson's "coercive model" involves a sequence that typically starts when the parent emits a command or another behavior aversive to the child (Patterson, 1976). The child responds to the parent command with behaviors aversive to the parent (screaming, aggressive behavior, tantrums, whining, etc.). This child behavior punishes the original parent command and continues, perhaps escalating in intensity, until the parent withdraws or weakens the command. The aversive child behavior (e.g., screaming, aggressive behavior, tantrums), called "coercive," temporarily terminates when the command is withdrawn. The parent withdrawal of the command reinforces the coercive child behavior, and the cessation of the child's coercive behavior reinforces the parent behavior of withdrawing the command. The behavior of each member of the dyad (parent and child) presents an aversive stimulus to the other dyad member, and the termination of each individual's behavior strengthens the behavior of the other by negative reinforcement. With repetition, these behaviors gain discriminative control, producing a stereotyped coercive cycle. If either individual does not terminate behavior quickly an escalating cycle of more intense commands, coercive behaviors, and withdrawal can result, perhaps as a function of extinction-induced increases or discriminative control.

In intervention procedures designed to break this coercive cycle or negative reinforcement trap, Patterson has concentrated on parent training procedures designed to teach parents to punish children's coercive behaviors and to improve the parents' contingent application of social reinforcers for appropriate child behavior. Techniques employed by the Patterson group (Patterson, 1976; Patterson, 1982), such as contingency contracting, have been effective in suppressing high-intensity coercive behaviors such as aggression and tantrums. Emphasis has been on modifying contingencies to disrupt the coercive cycle.

The Role of Command Form. The program originally outlined by Hanf (1969, 1970) and further developed by Forehand and his colleagues (e.g., Forehand & McMahon, 1981; Peed, Roberts, & Forehand, 1977; Roberts, McMahon, Forehand, & Humphreys, 1978) was specifically designed to alter noncompliance in children between the ages of 2 and 8. The approach stresses command form as a major factor in conceptualizing noncompliance. Because it is difficult to comply with vague commands, and difficult to provide clear consequences when the behavior requiring compliance is not well specified, ambiguous commands may lead to or encourage noncompliance. Precise "alpha" commands that specify a concrete behavior that has a beginning and an end (e.g., "Put that shovel in the box," or "Wash your hands.") are contrasted with vague "beta" commands that do not specify a particular behavior (e.g., "Quit bugging me," "Be nice," or "Stop being such a nuisance."). The assumption is that the latter do not have strong discriminative control over specific child behaviors and that consistent consequences cannot be programmed for compliance and noncompliance to beta commands.

Patterson (1982) defined four different types of commands: commands, commands negative, aversive commands, and commands prime. Patterson defined a command as a direct, reasonable, and clearly stated instruction (e.g., "Please pick up the pencil."). A command negative was defined as an instruction in which a child is told to stop doing something (e.g., "Stop hitting your sister."). An aversive command is an instruction that threatens aversive consequences (e.g., "Clean your plate or go to your room."). A command prime is an instruction for which compliance can not be determined (e.g., "Shape up.").

Assessing Noncompliance in Children

The Compliance Test

Roberts and Powers (1988) developed a standardized compliance test. The Compliance Test has two forms and consists of 30 chore-like instructions that are administered in a standard manner. Both versions of the Compliance Test were normed on large samples of clinic-referred children, and the authors reported that the Compliance Test demonstrated internal consistency, adequate test-retest reliability, and modest response and setting generality coefficients.

Interviews and Questionnaires

Gross and Wixted (1987) described several phases in the assessment of noncompliant behavior. A behavioral interview is usually the first phase and the initial contact between therapist and parents. The interview provides an opportunity to ask open-ended questions aimed at exploring the parameters of the problem behavior, such as demographic information, possible antecedent and consequent events, the parents' prior discipline attempts, and potential reinforcers for the child.

A typical second phase involves the use of standard behavioral questionnaires. Currently, there is no behavioral questionnaire specifically designed to measure noncompliant behavior alone (Gross & Wixted, 1987); however, a number of scales are available that assess a variety of conduct problems in children (see Gross & Wixted, 1987, for a listing of these scales). Forehand, Griest, and Wells (1979) point out the ease and economy of behavioral questionnaires while also noting their situational bias and poor reliability and validity.

Direct Observation

The final and most important phase suggested for assessing noncompliance is direct observation (Gross & Wixted, 1987) in a natural or analog setting. O'Brien and Budd (1982) compared existing methods for assessing noncompliance with direct observation and cited four different methods used to

determine rate of compliance or noncompliance: (a) scoring compliance or noncompliance immediately following an appropriate parental instruction (e.g., Forehand & King, 1977; Peed et al., 1977); (b) scoring compliance or noncompliance during each of the first three 10-second intervals after a parental instruction (Kelley, Embry, & Baer, 1979); (c) computing compliance or noncompliance by comparing the number of compliance plus noncompliance intervals (Wahler & Fox, 1980); and (d) scoring terminal completion or noncompletion of the specified response (Budd, Green, & Baer, 1976). O'Brien and Budd (1982) recommended the three 10-second intervals approach (Kelley et al., 1979), although Stiffman's (1983) data might suggest a longer period of recording after a command. In addition to child compliance information, an observational assessment should address negative parental behavior, types of commands used, and the rate at which the commands are given (Gross & Wixted, 1987).

Behavioral Interventions for Noncompliance

Most studies on interventions for treating childhood noncompliance have investigated one or more of three areas: manipulation of behavioral antecedents of noncompliance, manipulation of behavioral consequences of noncompliance, and approaches involving the generalization of treatment effects. For a more complete comparison of treatments for noncompliance, see the matrix in Table 1.

Effects of Antecedents of Compliance

Command Form. Elrod (1987) investigated compliance to direct and indirect commands with children aged 33 months to 77 months. He found an increase in compliance as a function of the degree to which a command is judged to be direct. Others have suggested that commands given at a high rate, particularly beta commands, lessen the likelihood of compliance (Peed et al., 1977; Roberts & Powers, 1988; Schoen, 1986; Williams & Forehand, 1984) or escalate negative interactions (Glass, 1988).

Roberts et al. (1978) investigated the role of alpha commands in altering noncompliance using 3- to 7-year-old children who were clinically noncompliant. Command training alone, command training plus timeout, and a procedure stressing parental response to child statements (Parent Effectiveness Training or PET, Gordon, 1970) were compared. Parents in the command alone training group significantly increased child compliance, and parents in the command plus timeout training group demonstrated even greater increases in child compliance when compared to the PET group.

Command type (positive or negative) has been identified as an important dimension in the command-compliance or noncompliance interaction (Glass, 1988), but there are few empirical studies investigating the relationship between

Table 1
A Summary of Research Studies for Noncompliance

Study	Subjects/ages	Major antecedent components	Major consequence components	Change agent	Nature of experimental control/design	Key dependent variables	Results	Follow-up
1. Azrin & Powers (1975)	6 boys (7–11 yrs)		Positive practice delayed, Positive practice immediate, Reinforcement, reminders & warnings. Loss of recess	Teacher	None	Mean frequency noncompliance	Both positive practice conditions significantly more effective	None
2. Bernal et al. (1968)	1 boy (8.5 yrs) & mother		Reinforcement of compliance & differential reinforcement of nondisruptive behavior	Parent (mother)	None	Frequency of noncompliance	Frequency of noncompliance decreased, effects maintained over 23 weeks	None
3. Doleys et al. (1976)	4 children (8–10 yrs)		Social punishment, positive practice, time-out	Experimenter	Withdrawal design; control for order effects	Mean percentage noncompliance (10 sec to comply)	Social punishment most effective in decreasing noncompliance	None
4. Elrod (1986)	78 children (3.3–6.5 yrs)	Command type (Direct v. indirect) Verbal explan., verbal explan. & drawings		Experimenter	Random assignment	Rate of compliant responses to story parent making a request	Compliant responses increased when story parent made direct request	None
5. Forehand & Scarboro (1975)	24 children (5.0 yrs) & mothers	Rate of commands issued, time from command presentation		Parent (mother)	Command presentation randomized	Mean noncompliance per 6 commands across 18 10-sec intervals	Compliance negatively correlated with # of commands. Most noncompliance occurred immediately following command presentation	None

(continues)

Table 1 *continued*

Study	Subjects/ages	Major antecedent components	Major consequence components	Change agent	Nature of experimental control/design	Key dependent variables	Results	Follow-up
6. Foxx & Shapiro (1978)	5 boys (8–18 yrs)		Reinforcement, reinforcement & non-exclusionary time-out	Teachers	ABCBC Design	Mean percentage noncompliance	Noncompliance less in reinforcement & time-out condition	None
7. Green et al. (1979)	20 children (3.9–8.3 yrs) & mothers	Parental instruction ("make child look compliant vs. look noncompliant")		Parent (mother)	Control for order effects	Percent child compliance & negative behavior, type of command issued by mother	Children displayed more negative behavior with labeled & stop commands, mothers could manipulate child compliance	None
8. Goetz et al. (1975)	1 girl (3.7 yrs)		Contingent reinforcement, noncontingent reinforcement, DRO	Teacher	Reversal design	Percentage compliance	Compliance increased with contingent reinforcement & decreased in both noncontingent & DRO conditions	7 & 16 days
9. Hamlet et al. (1984)	2 children (11 yrs)	Eye contact		Teacher	Multiple baseline across Ss	Daily percentage compliance to 10 commands	Eye contact increased compliance over baseline for both Ss	None
10. Hobbs et al. (1978)	28 children (4.0–6.6 yrs)		Time-out duration (10 secs, 1 min, 4 min)	Parent (mother)	Feedback control group (with random assignment), combined between Ss reversal design	Mean percentage noncompliance (failure to comply within 10 sec)	All conditions produced significantly less noncompliance; 4 min time-out most effective; 10 sec least effective	None
11. Hobbs & Forehand (1975)	12 children (4–6.5 yrs) & mothers		Release from time-out (contingent vs. noncontingent)	Parent (mother)	ABAB design; control for day effects	Mean percentage noncompliance & disruptive behavior during time-out	Noncompliance & disruptive behavior during time-out significantly less in contingent release condition	None
12. Hornik (1987)	288 adult shoppers	Eye contact and touch		Experimenter	No eye contact/touch group (nonrandom assignment)	Percent compliance (percent of Ss who agreed to participate in a study)	Compliance rates significantly higher in eye contact/touch group	None
13. Houlihan & Jones (1990)	3 children (5.2–6.7 yrs)	Command type ("Do" vs. "Don't")	Reinforcement	Experimenter	ABAC design, counterbalanced across Ss	Mean percentage inappropriate behavior & compliance to "do" and "don't" commands	Compliance did not generalize from one request to the other; two Ss showed increased inappropriate behavior with increases in compliance to "don't" requests	None
14. Kelley et al. (1979)	1 boy (5.0 yrs) & parents	Parent training to improve instructions	Parent training in differential attention	Parents	Multiple baseline design across parent behaviors	Percentage child compliance	Compliance increased with parent training in differential attention	Six months
15. Mace et al. (1988)	4 male adults (34–45 yrs)	Sequence of high-probability commands issued prior to a low-probability command		Experimenter	Reversal design, control for order effects	Percentage of compliance to low-probability "do" & "don't" commands (10 sec to comply)	High-probability command sequence increased compliance & decreased compliance latency & task duration	None
16. Neef et al. (1983)	16 children (6–8 yrs)	Command type ("Do," "Don't," Varying schedule of "Do" & "Don't")	Reinforcement	Experimenter	Multiple baseline across Ss, counterbalanced conditions	Mean percentage compliance with "do" & "don't" commands (10 sec to comply)	Reinforcing "do" & "don't" requests increased compliance to those requests; effects of reinforcement did not generalize from one command type to another	None

(continues)

Table 1 *continued*

Study	Subjects/ages	Major antecedent components	Major consequence components	Change agent	Nature of experimental control/design	Key dependent variables	Results	Follow-up
17. Parrish (1986)	4 children (3.1–5.3 yrs)		Contingent reinforcement, differential reinforcement of nondisruptive behavior		Reversal design	Percent compliance (20 sec to comply) & inappropriate behavior	Contingent reinforcement for compliance increased compliance & decreased inappropriate behavior, DRO condition decreased inappropriate behaviors & increased compliance	None
18. Peed et al. (1977)	12 children (3.7–8.8 yrs) & mothers	Command training	Contingent rewards & attention & time-out	Therapist	Wait-list control group (nonrandom assignment)	Parent behaviors (i.e., use of contingent attention), child compliance to alpha commands (5 sec to comply)	Parent & children in treatment group demonstrated multiple behavior changes, control group showed no change	None
19. Roberts (1982)	24 children (2–6 yrs) & mothers		Warned time-out, warned time-out & contingent attention, unwarned time-out	Parent (mother)	AB design	Mean percentage compliance (5 sec to comply), mean no. time-out occurrences	Compliance significantly increased in all 3 conditions, warned TO associated with fewer no. TO occurrences	None
20. Roberts (1985)	80 children (2.2–7.0 yrs) & parents		Contingent praise	Parents	Random assignment (project 2)	Ratio of compliance (5 sec to comply)	Contingent praise not effective	None
21. Roberts & Hazenbuehler (1981)	13 children (2–7 yrs) & mothers		Differential attention, contingent attention & time-out	Parent (mother)	Replication control group, multiple baseline across groups	Percent compliance (5 sec to comply) & negative verbalizations	Contingent attention & contingent time-out most effective with both target behaviors	None
22. Roberts et al. (1981)	32 children (2–7 yrs) & mothers		Differential attention, differential attention & time-out, time-out	Parent (mother)	No treatment control group (random assignment)	Mean percent compliance (5 sec to comply)	Only time-out contributed to compliance acquisition	None
23. Roberts et al. (1978)	27 children (3–7 yrs) & mothers	Command training	Command training & time-out	Experimenter	Placebo training group (random assignment)	Ratio of maternal alpha commands given & ratio of child compliance to alpha commands	Higher compliance ratios in command training & time-out condition	None
24. Russo et al. (1981)	3 children (3.7–5.7 yrs)		Contingent reinforcement	Therapist	Multiple baseline across therapists.	Percent compliance (5 sec to comply), frequency of negative behavior	Compliance increased & untreated negative behaviors decreased	None
25. Scarboro & Forehand (1975)	24 children (4.9–5.11 yrs) & mothers		Time-out within-room, time-out out-of-room	Parent (mother)	Control group (random assignment)	Frequency of compliance (5 sec to comply), percent oppositional behavior	Two treatments equally effective in changing target behaviors	None
26. Schoen (1986)	1 boy (6.1 yrs)	Rate of commands (decreased vs. increased vs. unconditional rate & contingent reinforcement)		Teacher	Multielement design; control for sequence effects	Percentage noncompliance (5 sec to comply)	Increasing density of commands & contingent reinforcement most effective	None

(continues)

Table 1 *continued*

Study	Subjects/ages	Major antecedent components	Major consequence components	Change agent	Nature of experimental control/design	Key dependent variables	Results	Follow-up
27. Schutte & Hopkins (1970)	5 girls (4.8–6 yrs)		Contingent praise	Teacher	ABAB design	Mean percentage compliance (15 sec to comply)	Contingent attention reliably increased compliance	None
28. Zeilberger et al. (1968)	1 boy (4.8 yrs) & mother		Differential reinforcement to increase compliance & decrease aggressive behavior	Parent (mother)	ABAB	Percentage compliance & aggressive behavior	Increase in compliance & differential control of aggressive behavior	None
29. Zimmerman (1969)	7 boys (8–15 yrs)		Response-contingent token reinforcement, response-contingent praise	Experimenter	None	No. of requests complied to	Token reinforcement differentially maintained compliance in 4 children	None

positive and negative commands and compliance. Several investigators have referred to the importance of command type (Elrod, 1987; Forehand, 1977; Wahler, 1976) with most having chosen to focus primarily on positive ("do") commands (Hamlet et al., 1984; Parrish et al., 1986), giving only scattered attention to negative ("don't") commands (Johansson, 1971; Neef et al., 1983). Research has shown that "stop" or "don't" requests are more likely to be issued to deviant children who often do not comply with them (Glass, 1988; Green, Forehand, & McMahon, 1979; Neef et al., 1983). Johansson (1971) found similar rates of compliance to both positive and negative commands. However, Glass (1988) pointed to a tendency for children to be less compliant with negative or "don't" requests. In studying the effects of "do" and "don't" requests on compliance of children with "mental handicaps," Neef et al. (1983) found that reinforcing "do" and "don't" requests increased compliance to those requests, but the effects of reinforcement did not generalize from one type of command to the other. Using 6- to 8-year-old children with severe behavioral disorders as participants, Neef et al. concluded that compliance with "do" and "don't" requests may be functionally distinct response classes and recommended reinforcement of both "do" and "don't" requests to increase compliance. Houlihan and Jones (1990) and Jones, Sloane, and Roberts (in press) noted increases in some negative behaviors as an unwanted side effect of reinforcing compliance with "don't" commands and suggested reinforcing only compliance with "do" commands.

Variations in positive commands have also been studied. Lytton and Zwirner (1975) and McLaughlin (1983) found higher rates of compliance to commands phrased as suggestions rather than as imperatives. However, the variety of commands used makes comparison of results difficult. Although many researchers have used relatively simple and specific one-step commands in their programs (Neef et al., 1983; Parrish et al., 1986; Roberts & Powers, 1988), other researchers have mixed in more difficult two-step and multiple-step commands (Stiffman, 1983; Zimmerman, Zimmerman, & Russell, 1969) or used vague, imprecise commands (e.g., "Line up," or "Play with the blocks for a while.") (Forehand & Scarboro, 1975; Hamlet et al., 1984; Stiffman, 1983) confounding comparison of results.

Command Context. Forehand and Scarboro (1975) investigated the relationship between child noncompliance, the number of maternal commands issued, and time from command presentation. Noncompliance increased with higher rates of commands. Most noncompliance was observed immediately following presentation of the command, with noncompliance steadily declining over the first 3 of 18 10-second intervals.

Some noncompliance treatment approaches involve controlling and manipulating antecedent behaviors (e.g., eye contact, command specificity, rate of commands, the use of examples and explanation). Schoen (1986) found that increasing the density of instructional commands and reinforcing compliance was the most effective treatment approach. Commands issued at a frequent and

consistent pace have been found to reduce noncompliance (Plummer, Baer, & LeBlanc, 1977; Schoen, 1986), suggesting a potential antecedent approach to treating noncompliance.

The effects of "behavioral momentum" on compliance was studied by Mace, Hock, Lalli, West, Belfiore, Pinter, and Brown (1988). Mace et al. define behavioral momentum as the tendency for a behavior to persist following a change in the environment. In their study, Mace et al. found the addition of a high-probability compliance-command sequence resulted in a subsequent increase in compliance to low-probability commands. However, the Mace et al. study was done with a 36-year-old man, and it is uncertain whether children would respond in a similar manner.

Similarly, Atwater and Morris (1988) found that children already appropriately engaged in an activity were more likely to comply than those being disruptive or off-task. Schumm, Bugaighis, Jurich, and Bollman (1986) reported that parental use of examples and explanation increased rates of compliance. Finally, Hamlet et al. (1984) reported increased compliance by demanding eye contact prior to issuing a command. Glass (1988) accompanied commands with a "thumbs up" gesture. The child was reinforced for responding with another thumbs up gesture and for compliance. The program increased compliance rates over baseline.

Atwater and Morris (1988), in a carefully descriptive study, found that the activity context was the most important determinant of the probability of preschoolers' compliance. Command form was not found to be significant.

Effects of Consequences on Compliance

Most programs designed to decrease noncompliance via the use of contingent consequences have focused on reinforcement of compliance and differential reinforcement of nondisruptive behavior (Bernal, Durvee, Pruett, & Burns, 1967; Flanagan, Adams, & Forehand, 1979; Neef et al., 1983; Parrish et al., 1986; Roberts, 1985; Russo, Cataldo, & Cushing, 1981; Schutte & Hopkins, 1970; Zimmerman et al. 1969). A variety of reinforcers have been used, including social reinforcement, tokens, edibles, and toys (Glass, 1988; Wahler & Fox, 1980). Sloane, Endo, Hawkes, and Jenson (1990) used positive reinforcement procedures in a self-instructional format. Goetz et al. (1975) and Parrish et al. (1986) combined reinforcement for compliance with differential reinforcement of other behaviors (DRO) contingent on not emitting disruptive behaviors. Both found that reinforcement increased compliance while decreasing inappropriate behaviors.

Treatment is provided in a laboratory clinic or analogue setting and utilizes modeling, role-playing, and direct therapist instructions to develop appropriate parent behaviors that will increase child compliance (Forehand & McMahon, 1981; Peed et al., 1977). Forehand and Peed (1979) cited treatment data from three different clinical settings for more than 75 noncompliant children that supported the Hanf-Forehand program for training parents to modify child noncompliance.

Treatment takes place in two phases (Peed et al., 1977). First, parents are taught to increase describing and praising positive child behaviors and decrease use of questions, commands, and criticisms. Second, parents are taught to use precise commands (alpha commands) and decrease or eliminate the use of vague or repeated commands (beta commands), which are difficult to comply with. In the second phase, parents are also taught to use "time-out" following child noncompliance. Time-out is administered contingent upon child noncompliance, but only when noncompliance follows an initial command to comply plus a subsequent warning.

Other studies have investigated the use of time-out or overcorrection contingent on noncompliance (Azrin & Powers, 1975; Forehand & MacDonough, 1975; Gardner, Forehand, & Roberts, 1976; Hobbs & Forehand, 1975; Hobbs, Forehand, & Murray, 1978; MacDonough & Forehand, 1973; Roberts, 1982a, 1982b, 1984; Wahler & Fox, 1980) and generally found it effective. Hobbs and Forehand (1975) noted better results when release from time-out required a minimal time in isolation plus a short time without disruptive behavior than when the brief period without disruptive behavior was not included. Gardner et al. (1976) found that explanations did not make time-out more effective, and Roberts (1982a) similarly found that warnings did not enhance time-out effectiveness, although both found that time-out contingent on noncompliance increased compliance. Roberts also found fewer time-outs were used when warnings were included. However, Jones (1990) found that warnings plus time-out often increased aggression over the level obtained with warnings alone, raising questions as to whether this might also be true of noncompliance. Finally, Scarboro and Forehand (1975) found that a time-out in the classroom was as effective as a time-out in a separate room, supporting the use of "non-exclusionary" time-out (Foxx & Shapiro, 1978). However, within-the-room time-out had to be used more to obtain equal effects.

These approaches have commonly been combined (Doleys, Wells, Hobbs, Roberts, & Cartelli, 1976; Wahler & Fox, 1980). It is generally accepted that combining reinforcement of compliance with time-out for noncompliance will more effectively reduce noncompliance than either alone (Gardner et al., 1976; Hobbs et al., 1978; Peed et al., 1977).

Generalization of Effects in Treating Noncompliance

Although many studies have reported success in treating noncompliance, only a few have reported treatment generalization (Breiner & Forehand, 1981; Forehand & Peed, 1979; Glass, 1988; Wahler, 1969, 1976; Zeilberger, Sampen, & Sloane, 1968). Forehand and Atkeson (1977) noted that generality may be divided into four areas: temporal, setting, behavioral, and sibling/peer generality.

Temporal Generality

Temporal generality refers to the maintenance of treatment effects following the termination of the treatment (Forehand & Atkeson, 1977). Several studies have reported a failure to maintain treatment effects into follow-up (Patterson, 1976; Wahler, 1969). Stokes and Baer (1977) emphasized the need to program explicitly for successful maintenance of program effects over time. They suggest that the teacher or parent continue the reinforcement originally provided or programmed by the therapist in treatment in the after-treatment setting.

Setting Generality

Glass (1988), using the thumbs up program, noted the failure of compliance gains to generalize from one natural treatment condition (math class) to another similar condition (English class held in the same classroom with the same teacher) despite few environmental alterations. Sanders and Dadds (1982), using parent-training procedures designed to program generalization of parent and child behaviors to other settings, were able to effect changes in parent behaviors across settings, but the parents had difficulty reducing rates of deviant children's behavior. Results also indicated the parents were more likely to maintain aversive behaviors in different settings than positive behaviors.

Behavioral Generality

Behavioral generality refers to changes in behaviors not targeted for treatment (Forehand & Atkeson, 1977). One of the earliest studies to note positive treatment side effects of compliance training was Zeilberger et al. (1968). Recent studies pointing to the potential value of behavioral generality in changing multiple behavior problems are Russo et al. (1981), Parrish et al. (1986), and Houlihan (1989). Jesse (1989) demonstrated that reinforcing compliance to specific commands produced increases in compliance to both targeted (reinforced) and nontargeted (not reinforced) commands.

It should be noted that one published compliance training program (Engelmann & Colvin, 1983) presents fairly explicit procedures for developing generalization as well as for weakening noncompliance, strengthening compliance, and extinguishing inappropriate behaviors that usually accompany noncompliance. Unfortunately, formal evaluative research is not presented, although a number of convincing case studies (some of which have formal designs) are briefly presented.

Sibling Generality

Humphreys, Forehand, McMahon, and Roberts (1978) studied the degree to which treatment effects generalized from a treated child to an untreated sibling in 8 families with 3- to 8-year-old children. The therapists made no mention of

applying procedures to siblings of the target child. From pretreatment to posttreatment, compliance increased in untreated siblings. Mothers increased appropriate attending and reinforcing behaviors with the sibling and decreased their use of beta commands with the sibling.

Ethical Considerations in Compliance Training with Children

Four major concerns have been expressed concerning compliance training. The first involves possible side effects of treatment. Willems (1974) stated that certain treatments might inadvertently strengthen undesirable as well as desirable behaviors. Willems suggested that therapists record a wide range of behaviors to detect any inadvertent or collateral effects.

The second, addressed by Forehand (1977), questions whether increased child compliance is always desirable. Noting that compliance is not always a positive quality, he stated that 100% compliance rates should never be the goal of behavioral programming. Forehand cited Milgram's (1974) concerns of having produced a "disturbing" level of compliance in analog settings constructed to measure obedience.

Forehand (1977) noted a third issue—the need for strict monitoring of commands given children by their parents when the child and parent are involved in a compliance-training program. It is conceivable that parents may use behavior modification approaches to obtain compliance to deviant commands. At some point, with older and more competent children, it may be wise to teach some sort of decision-making skills related to compliance. With most clinically noncompliant children who are less competent, this difficult, abstract discrimination could create more problems that it would solve.

A fourth ethical concern is the social validity of the specific compliance behaviors targeted for treatment. Many studies have increased compliance to commands that do not clearly benefit a child. If procedures are designed to benefit primarily teachers and parents, the well-being of the child may be overlooked.

Summary and Recommendations

Despite the interest and energy devoted to the study of noncompliance in children in the 1970s, it appears that research into this important area has diminished in recent years. This is unfortunate, because it appears that many questions about noncompliance are still unanswered. Although data indicate that noncompliance is a serious and common problem compared with childhood fears, depression, or attention deficits, the amount of research on childhood noncompliance is currently limited in comparison.

Similarly, there is little descriptive research on norms for noncompliance. Differential frequencies by gender, or differences in commands issued as a function of gender, are unknown. This makes it difficult to differentiate between

actual low compliance by children and deviant adult expectations, and to determine children who are at risk for later problems associated with noncompliance. The development of norms for different groups might help establish the social validity of targeting noncompliance for treatment in individual cases.

Developing norms requires some degree of standardization, and generally equivalent commands and definitions are not used in different studies. Although there are many reasons to resist standardized, rigid definitions, standardization for initial assessments and screening has value. Obviously, data obtained using initiation of a task as the measure of compliance will be different from data measuring task completion (Stiffman, 1983). The Compliance Test (Roberts & Powers, 1988) is available for standardizing commands used in assessing noncompliance. Similar assessment/research tools using more complex two-step and three-step commands may add to the understanding of noncompliance in older and higher functioning children. It is also important for future researchers not to mix these commands together, because it is not yet understood how topographical differences between commands (e.g., one-step versus two-step commands, simple motor commands versus complex motor commands) may affect compliance levels.

Research supports several suggestions for practitioners and parents. One is to require compliance in as few areas as possible, but also to provide many opportunities for compliance with the commands selected for training (Plummer et al., 1977; Schoen, 1986). The importance of clear, precise (alpha) commands seems well documented (Peed et al., 1977). The need to provide consistent differential consequences for compliance and noncompliance is obvious, including positive consequences for compliance. However, when aversive consequences for noncompliance are used with severe problems, research seems to suggest delivering consequences immediately after noncompliance with no additional warning, if we are willing to assume that aggressive behavior and noncompliance respond equivalently to contingencies (Jones, 1990). Even though warnings appear to decrease the number of time-outs (Roberts, 1982a), warnings do not improve effectiveness (Roberts, 1982a; Gardner et al., 1976) and at least have the possibility of increasing noncompliance (Jones, 1990). Finally, we feel that the coercive model analysis indicates the importance of parent training that involves modeling, rehearsal, and reinforcement, with continued monitoring, rather than just instructions. It is somewhat of a behavioral cliché to point out that people do not behave nonadaptively merely because they lack information about alternatives. The mutual negative reinforcement "trap" described by the coercive model suggests that strong contingencies maintain parent and child behavior. New contingencies are needed to change this situation.

A current disappointment is the failure of many studies to document generalization across settings and time. Studies that evaluate generalization are very sparse. The recent increase in published research concerning generalization has been encouraging, suggesting that generalization may be receiving more attention (Breiner & Forehand, 1981; Glass, 1988; Houlihan, 1989; Jesse, 1989; Parrish et al., 1986; Russo et al., 1981; Sanders & Dadds, 1982). Further research is needed in temporal, setting, and behavioral generalization to understand failures to generalize and to develop new treatments. This includes a need for more creative fading and thinning techniques for use with noncompliant children (Jesse, 1989) to maintain changes over time. A main focus of future treatment studies might well be issues of generalization and maintenance of positive treatment effects over time.

Related to generalization is the growing interest in response covariation. Better understanding of response covariation can significantly add to treatment effectiveness and reduce undesired side effects. By learning more about the side effects of compliance treatments, new treatments with greater ecological validity can be developed (Martens, 1985).

Recently, research has started to show a relationship between noncompliance and other childhood behavior problems (Parrish et al., 1986; Russo et al., 1981; Wahler & Fox, 1980). Structuring integrated and comprehensive long-term treatment programs for children with multiple behavioral problems is a desirable future development.

Last, the social psychology literature contains many references to research demonstrating the use of antecedents (e.g., eye contact and physical touch) in increasing levels of compliance (e.g., Hornik, 1987; Kleinke, 1977, 1980). Research on antecedents to noncompliance in children has received more attention in recent years (Hamlet et al., 1984), but much is still unexplored. Jesse (1989) noted the need to investigate the differential effects on student compliance of teacher body orientation (e.g., standing, stooping, sitting, squatting). Many of the persuasive techniques used by social psychologists may have elements pertinent to childhood noncompliance. It might be interesting to study whether noncompliant children who first are taught to comply with simple commands will be more likely to comply subsequently with more complex commands (Beamen, Cole, Preston, Klentz, & Steblay, 1983; Mace et al., 1988). Conversely, it would be interesting to explore if children demonstrating noncompliance to simple commands would increase their likelihood of complying with simple commands if those commands were first preceded by more difficult, complex, or "undoable" commands (Cialdini, 1984).

In summary, research on the immediate effectiveness of compliance training is convincing. Methodological issues, norms, generalization and maintenance, relationships to other behaviors, and compliance factors other than consequences remain muddled.

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