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Data-Based clinical decision making in the treatment of an adolescent with severe conduct problems

Douglas W. Nangle, Rebecca E. Carr, and David J. Hansen

Abstract: This case illustrates the contributions of continuous data monitoring to clinical decision making in the treatment of an adolescent with severe conduct problems. Treatment began with a comprehensive point system that required the continual monitoring of a range of target behaviors. Beginning each session with a review of graphs of the monitored behaviors helped keep the sessions focused and rewarded the client and his parents with visual feedback of their progress. A subjective rating system was also implemented in which the client's parents quantified their evaluations of his overall behavior on a daily basis. This system enhanced the client's parents' sensitivity to the relationship between his observable behavior and their subjective evaluations of him. It also helped the therapists determine when the point system had reached the peak of its effectiveness and conclude that a family-based treatment approach was needed. As part of family-based treatment, a rating scale was developed that assisted the therapists in conducting family problem-solving training and allowed for continued evaluations of the family's progress in learning key skills.

The antisocial behaviors comprising conduct disorders (e.g., aggression, stealing, destruction of property, serious rule violations) pose a significant challenge for mental health professionals. Such conduct problems account for some 30% to 50% of all child and adolescent mental health clinic referrals (Herbert, 1987). Left untreated, these behaviors remain stable over the course of development and predict a number of poor adult outcomes, such as psychopathology and criminality (Loeber) 1982; Patterson, 1982). Given the prevalence and predictive power of antisocial behaviors, it is sobering to find that treatment attempts are most often unsuccessful (Kazdin, 1987). One of the more promising available treatment approaches appears to be behavioral family-based interventions (Kazdin, 1987). Behavioral family-based interventions typically take the form of parent training and are based on the assumption that parenting skills deficits (and sometimes excesses) are implicated in the development and/or maintenance of the child's conduct problems. Parents are given instruction in basic behavioral principles (e.g., reinforcement, punishment) and procedures (e.g., differential reinforcement,

time out, response cost), and taught how to use these principles and procedures to decrease the rates of antisocial behaviors and increase the rates of prosocial behaviors exhibited by their child.

Although parent training appears to be effective with young children, much less is known about its efficacy with adolescents. Patterson and his colleagues offer one of the few parent-training interventions specifically adapted for use with adolescents (Forgatch & Patterson, 1989; Patterson & Forgatch, 1987). Specific adaptations include the parental monitoring of a wider range of behaviors, especially those that put the adolescent at increased risk for further delinquency (e.g., curfew violations), increased overall parental monitoring and supervision (e.g., knowing “who, where, what, when”), and increased involvement of the adolescent in the treatment process (Patterson & Forgatch, 1987). The second phase of the intervention involves teaching the parents and adolescent new ways to deal with problem behaviors and conflict through the use of family problem solving and negotiation (Forgatch & Patterson, 1989).

The present case study describes the application of the Patterson and Forgatch intervention in the treatment of a 15 year-old male exhibiting severe conduct problems. A single-subject design evaluation of this case can be found in Nangle, Carr-Nangle, & Hansen (1994). The purpose of the present paper is to illustrate the contributions of continuous data monitoring to our clinical decision-making. As will be illustrated by this case, the use of ongoing data collection described by Hawkins & Mathews (1999) as “Level 1” research is actually a fundamental aspect of the Patterson and Forgatch intervention (Forgatch & Patterson, 1989; Patterson & Forgatch, 1987).

Method

Participant

Eric was a 15 year-old, lower middle-class, white male referred to our university-based outpatient clinic for the treatment of severe conduct problems, such as aggression, threatening family members with a knife, and destruction of property. He met DSM-IV (American Psychiatric Association, 1994) criteria for both Attention-Deficit/Hyperactivity and Conduct Disorders. Eric was referred to us by a graduate student therapist treating him for behavior problems (e.g., verbal and physical abuse of teachers, fighting with peers) through our clinic’s school consultation program. Eric had a history of psychiatric hospitalizations for problems associated with extreme temper outbursts and aggression (ages 2 and 13), as well as six years of outpatient counseling preceding this referral.

Eric lived at home with his mother, stepfather, and three siblings (one biological, two half). He rarely mentioned his biological father and had no contact with him. Eric attended a public school in a suburban setting where he was enrolled in the behavior-disorders program, but was also enrolled in two advanced classes and participated in wrestling and track (with the continued prompting and support of his behavior-disorders teacher).

Setting

Intervention began with weekly therapy sessions that were held at our university-based outpatient clinic and usually attended by Eric and his mother. Repeated scheduling difficulties and sporadic attendance soon prompted us to move the intervention into the home setting. The home visits typically involved two therapists meeting with Eric, his parents, and sometimes his siblings, for weekly 90-minute sessions, usually held at the family’s dining room table. Initiation of the home visits allowed for a more objective assessment of Eric’s situation, improvements in “attendance,” and increased involvement of family members, especially Eric’s step-father. The therapists also maintained frequent contact with Eric’s behavior-disorders teacher.

Data Collection

Three types of data were collected. First, as part of the intervention, Eric’s parents were asked to collect frequency data on a number of target behaviors. Second, Eric’s parents were asked to complete daily subjective ratings evaluating his behavior. Third, as part of the family problem-solving training, the therapists developed a rating scale that was used to monitor the family’s progress in learning key skills.

Target behaviors. A fundamental part of the Patterson and Forgatch (1987) intervention is teaching parents how to define and track target behaviors. Using this approach, we worked collaboratively with Eric and his parents to generate a list of target behaviors and define them specifically. We have found that such collaboration enhances compliance by both the parents and the adolescent. Eric’s parents, like most parents, initially described his behavior in very global, nonspecific terms (e.g., “He is mean”). They were then asked to list exactly what Eric did, in terms of observable behaviors, that led them to use the global descriptors (e.g., “He hits his sister,” “He curses”).

As the result of this process, we generated and defined an initial list of target behaviors that the parents wanted to see Eric engage in more frequently (helping, sharing, saying nice things to someone) and less frequent-

ly (aggression, cursing, destruction of property). Throughout intervention, we continued to refine and add to the list of target behaviors. As suggested by Patterson and Forgatch (1987), we added target behaviors that might put Eric at risk for further delinquency, such as homework completion and curfew violations. In addition, inconsistencies between the parents' subjective ratings and Eric's recorded behavior often resulted from his engagement in behaviors not targeted. Therefore, we periodically added target behaviors, such as compliance with parental requests and Eric's insistent pestering when he did not get his way ("hounding"). The target behaviors were defined specifically in terms of observable responses so that we could all agree on instances of their occurrence or nonoccurrence. Example definitions follow:

Compliance: Eric engages in a behavior or ceases to engage in a behavior that has been specified in a request by his parents. Eric has 10 seconds to engage in the requested behavior (or in a period of time specified by the parents for requests that take longer to comply with, such as taking out the garbage). Failure to comply with the parental request within the specified time period will result in the coding of noncompliance.

Aggression: Eric engages in a physical act that would usually result in injury or pain to another person or restrict their movement (e.g., holds sister's arm to keep her from moving).

Frequency recording of behaviors. Eric's parents began to notice and record occurrences of these target behaviors continuously across the day and evening. As we expected, Eric's mother assumed most of the responsibility for this. She constructed simple recording forms (see Patterson & Forgatch, 1987) that were displayed on the refrigerator door and initiated the use of a golf-shot counter (Lindsley, 1968) to assist in the recording of high-rate behaviors, such as compliance. Upon the occurrence of a target behavior, Eric's mother immediately recorded a hash mark on the recording form next to the name of the response. Recording continued throughout the intervention.

Although interobserver agreement was not assessed formally, we used in-home session time to informally assess agreement on the use of the definitions and immediately discuss any disagreements. Eric was very detail oriented and learned the operational definitions quickly. This was helpful in that he served as an informal interobserver agreement checker, but detrimental in that he would purposefully engage in antisocial behaviors that did not technically meet the target behavior definitions.

Subjective ratings by parents. Across the initial 20 weeks of intervention, we noted a disturbing pattern in which Eric's parents' verbal evaluations of

his progress were often very negative despite his continued improvement on targeted behaviors. To quantify this pattern, we incorporated subjective ratings of Eric's behavior into the daily data collection. Eric's parents were asked to agree on a daily subjective rating of his behavior (on a 0 to 100 scale with higher ratings indicative of better behavior). Eric was asked to subjectively rate his own behavior using the same scale.

The parents were instructed to meet with Eric at the end of each day to discuss the subjective ratings and any disagreements. This procedure served to quantify the parents' satisfaction with Eric's behavior, facilitate family communication, and help us to decide when we needed to modify the intervention.

Family problem-solving skills assessment. After approximately 39 weeks, family problem-solving training (Forgatch & Patterson, 1989) was added to the intervention. We devised the Family Problem-Solving Rating Scale (FPSRS; see Figure 1) to help us monitor the family's progress throughout problem-solving training. The FPSRS is comprised of a checklist of each task-analyzed step in the family problem-solving training process (e.g., problem definition, solution generation, solution evaluation and implementation). Use of the FPSRS helps the therapist monitor progress during the session, provide immediate feedback, and keep the session focused.

Intervention

The intervention described was carried out in three phases: (1) contingency management (condition A) comprised primarily of a point system; (2) resumption of treatment, following the brief termination of services by parents, comprised of a more comprehensive contingency management (condition A') program; and (3) contingency management combined with family problem-solving training (condition A' + B).

Contingency management (A). The foundation of the Patterson and Forgatch (1987) intervention is teaching parents to notice and record selected target behaviors (see previous section). Eric's parents were also given instruction on how to set house rules, how to issue effective commands, the importance of using positive reinforcement, how to set up a point system, how to use response cost and the assignment of extra chores to decrease behavior, and how to negotiate behavioral contracts.

Subsequent to the baseline phase, Eric's parents were taught how to implement basic behavior management principles through the use of a point system in which Eric earned points for engaging in targeted prosocial behaviors and lost points for engaging in targeted antisocial behaviors. Eric and his parents negotiated weekly contracts outlining "menus" of specific rewards

Figure 1. Family Problem-Solving Rating Scale (FPSRS).

FAMILY PROBLEM-SOLVING RATING SCALE (FPSRS)

Date: _____ Rater: _____

Family members present: _____

Problem: _____

Rating of Difficulty of Problem:

Not Difficult Difficult Very Difficult
 1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____

A. PROBLEM SOLVING STEPS

Place check in the blank for each step that one or more family members completes.

1. Definition of problem

- _____ States specific conditions (e.g., people involved, times, places, etc.) that are presently undesirable.
- _____ States what changes or additions are desired.
- _____ States what obstacles are preventing desired state.
- _____ States what goal of meeting is.
- _____ Statements made in positive or neutral tone.
- _____ Attempts made to assess whether everyone understands problem.
- _____ Records rule violations.

Rating of Completeness and Clarity of Definition

Neither Complete but Both Complete
 Complete not Clear/Vice and Clear
 Nor Clear Versa

1 _____ 2 _____ 3 _____ 4 _____ 5 _____ 6 _____ 7 _____

Participation Rating for Step 1:

Participant

Very Negative		None		Very Positive	
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				

2. Brainstorming

- _____ Attempts to include everyone in process.
- _____ Takes turns.
- _____ Produces at least 5 solutions.
- _____ No evaluation of ideas.
- _____ Records every solution.
- _____ No criticism or hostility.
- _____ Uses humor.
- _____ Records rule violations.

Number of solutions produced: _____

Participation Rating for Step 2:

Participant

Very Negative		None		Very Positive	
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				
-3	_____ 2 _____ 1 _____ 0 _____ 1 _____ 2 _____ 3				

3. Evaluation of solutions.

- _____ Examines list of solutions and eliminates outlandish solutions and ones everyone agrees will not work.
- _____ Each participant states at least one advantage and one disadvantage for each solution.

- ____ Records pros and cons of each solution.
- ____ Statements are brief and to the point.
- ____ No criticism or hostility.
- ____ Re-examines list; eliminates solutions that everyone agrees will not work. Considers combining ideas.
- ____ Return to brainstorming if no solution can be agreed upon.
- ____ Records rule violations.

Rating of Effectiveness:

	Very Ineffective	Ineffective	Effective	Very Effective								
-3	____	-2	____	1	____	0	____	1	____	2	____	3

* *Very Ineffective*: Highly unlikely to solve problem and highly likely to make worse.
Ineffective: Unlikely to solve problem and likely to make worse.
Effective: Likely to solve problem and unlikely to make worse.
Very Effective: Very likely to solve problem and highly likely to make worse.

Participation Rating for Step 3:

Participant	Very Negative	None	Very Positive									
-3	____	2	____	1	____	0	____	1	____	2	____	3
-3	____	2	____	1	____	0	____	1	____	2	____	3
-3	____	2	____	1	____	0	____	1	____	2	____	3
-3	____	2	____	1	____	0	____	1	____	2	____	3

4. Plan for implementation of solutions.

- ____ States a specific plan for the implementation of selected solution (e.g., who will do what, etc.)
- ____ States a plan to evaluate the implementation of the solution.
- ____ Records plan and evaluation criteria.

- ____ Sets date for evaluation and re-meeting if necessary.
- ____ Everyone signs plan.
- ____ Attempts to Involve everyone in process.
- ____ Records rule violations.

Participation Rating for Step 4:

Participant	Very Negative	None	Very Positive									
-3	____	2	____	1	____	0	____	1	____	2	____	3
-3	____	2	____	1	____	0	____	1	____	2	____	3
-3	____	2	____	1	____	0	____	1	____	2	____	3
-3	____	2	____	1	____	0	____	1	____	2	____	3

that he could earn for favorable daily performances on the point system (e.g., extra money, junk food, staying up later than usual), as well as specific penalties for poor performances (e.g., loss of television time, going to bed early). Eric could “save” points for special privileges or rewards (e.g., trips to the mall, opportunities to cook his favorite dishes, extra money).

Therapy sessions began with a review of Eric’s performance on the point system for that week. One therapist immediately plotted the data on a series of working graphs done in pencil, while the other therapist discussed the week with Eric and his parents. When the plotting was completed, the focus of discussion turned to a review of the graphs. Making the data the central focus of the session appeared to enhance compliance with data collection and assisted the therapists in keeping the sessions on track (e.g., not shifting attention to each week’s crisis).

Contingency management (A’). Following a brief period of no treatment due to a temporary termination of services by Eric’s parents, we implemented a more comprehensive contingency management intervention. Target behaviors were added to the existing system (e.g., compliance, noncompliance, stealing, temper tantrums). In return for our continued involvement with the case, Eric’s stepfather agreed to much more involvement in the therapy sessions and intervention implementation. In addition, the therapists also consulted with the parents on the use of behavioral procedures (e.g., reward, time out) with Eric’s younger stepbrother and stepsister, whose behaviors were also becoming somewhat problematic and stressful for the parents.

Family problem-solving training. Because the data still did not show satisfactory results, family problem-solving training (Forgatch & Patterson, 1989) was added to the intervention after session 39. Eric, his parents, and 13 year-old sister were given instruction on basic problem-solving steps: problem identification and definition, solution generation, solution evaluation, agreeing on a solution, and evaluating the outcome of the implementation of the agreed upon solution. In addition, the family was given instruction on key communication skills (e.g., active listening) and how to use behavioral contracts to implement agreed upon solutions (Forgatch & Patterson, 1989). Training consisted of weekly homework assignments and readings from the Forgatch & Patterson (1989) text, as well as live modeling by the therapists and review of videotaped family problem-solving sessions conducted by Eric's family.

As the family acquired the problem-solving skills, they were instructed to notice and record issues that resulted in family conflicts (e.g., messy bathroom, delegation of house chores) and hold weekly "family forums" in which they engaged in the family problem-solving steps in order to negotiate

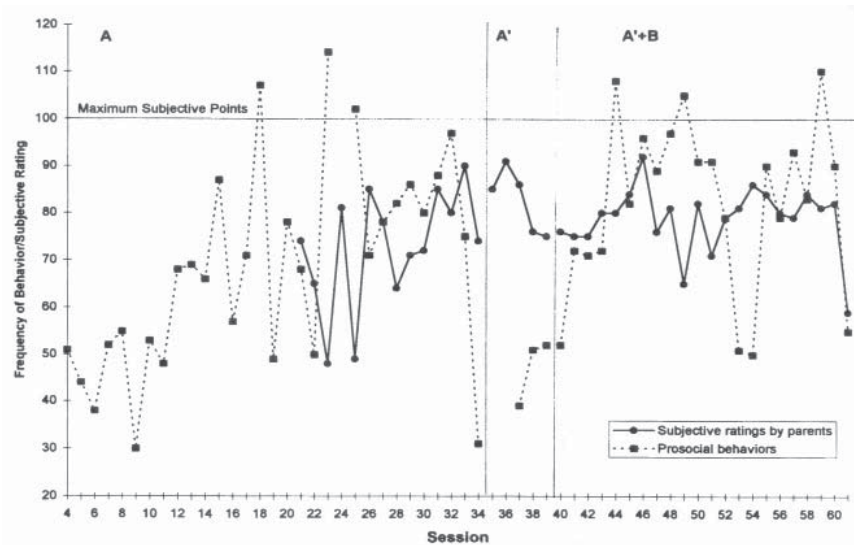


Figure 2. Average number of pro-social behaviors and mean subjective rating by parents across each week (taken from working graphs).

solutions to specific conflicts. Each solution was spelled out in a behavioral contract (see Forgatch & Patterson, 1989) signed by each family member and logged in a notebook by Eric's mother. These contracts were periodically reviewed by the family to determine whether or not the solutions worked.

Results

Contingency Management (A)

When the parents started collecting data, they reported a noticeable improvement in Eric's prosocial behavior. Eric's rate of prosocial behaviors (i.e., helping, sharing, saying nice things) increased steadily during the initial intervention phase from an average of 52 per week during the first 10 weeks to 79 per week during the last 10 weeks (see Figure 2). The rate of physical aggression (and parental verbal reports of severity) decreased over 60% per week from baseline and leveled off throughout the A phase.

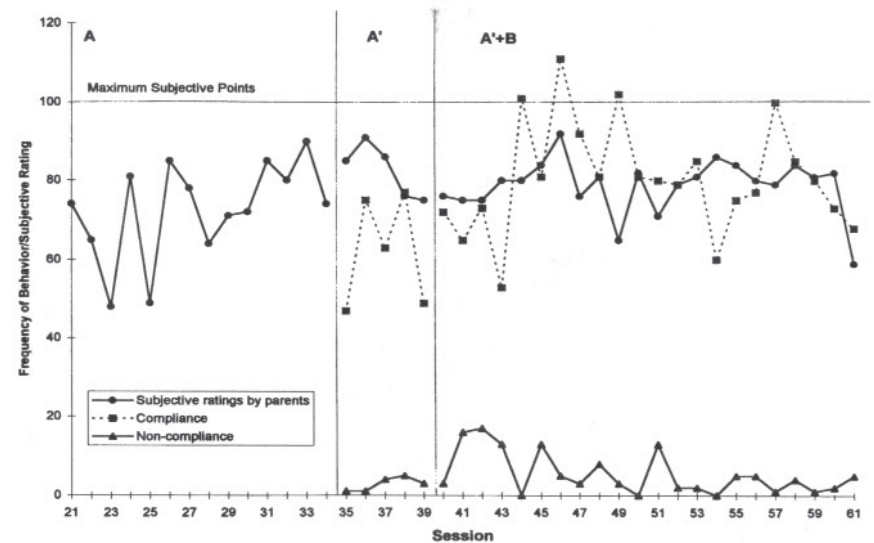


Figure 3. Average number of compliances and noncompliances and mean subjective rating by parents across each week (taken from working graphs).

As we expected, the parents' subjective ratings were quite variable across the initial weeks (see Figures 2 and 3; sessions 21 through 27) and did not seem to be related to the points that Eric had earned. The parents often felt frustrated because Eric would engage in inappropriate behaviors not targeted by the point system (an issue discussed earlier in the Data Collection section). Discussion of such instances led to continual adjustments to the point system. As a result, the parents' subjective ratings became less variable and were more in line with Eric's point system earnings.

Despite improvements in Eric's behavior, his parents continued to voice their frustration with him and the intervention. We were particularly concerned about the deteriorating relationship between Eric and his stepfather. As noted earlier, the stepfather left most of the responsibility for implementing the point system to Eric's mother. He typically came to session visibly upset with Eric and often voiced his belief that Eric ruined an otherwise happy family. The family eventually terminated treatment, a termination that proved to be temporary. Shortly after termination, Eric was hit by the stepfather during an argument that resulted from the stepfather's accusation that Eric had stolen batteries from him. Eric was removed from the home for a one-week period by Child Protective Services. Immediately after this incident, the family called to request that our services be resumed.

Contingency Management (A')

Eric responded well to the expanded point system (see Figures 2 and 3). For example, his frequency of compliance with parental requests increased dramatically. His parents' subjective ratings were quite favorable and consistent (see Figures 2 and 3). However, the parents' subjective ratings soon began to decline (sessions 37-39) and Eric's frequencies of prosocial behavior remained rather low (see Figure 2). As often happens in cases like this, Eric continued to be the focus of the parents' negativity.

The parents attributed a number of marital and sibling problems to Eric's behavior. We considered the possibility that the parents, especially the stepfather, might be "using" complaints about Eric to draw themselves closer together, since they had significant marital problems.

Contingency Management and Family Problem-Solving Training (A' + B)

In view of the increasing negative focus on Eric, we decided to shift the focus more to the family unit as a whole by adding family problem-solving training (Forgatch & Patterson, 1989) to the ongoing contingency manage-

ment intervention. The addition of family problem-solving skills training resulted in further improvements in Eric's behavior. There were improvements in his rate of prosocial behaviors (47 per week during A' to 85 per week during A' + B) and in his frequency of compliance (see Figures 2 and 3). With the combined intervention in place, these gains were maintained for a period of over two months. We were particularly pleased with the improvements in the relationship between Eric and his stepfather, and the parents' reported satisfaction with treatment. Unfortunately, despite these gains, Eric befriended a delinquent adolescent, which led to increasing parental concern because he began missing curfew (sessions 60-61; see Figures 2 and 3). Within weeks, Eric and his new friend were arrested for setting fire to a barn. Eric was removed from the home by the courts and services were continued within a residential treatment facility. Interestingly, according to the verbal report of Eric's mother via follow-up telephone conversations, the family continued to use structured family discussions and contracting long after the termination of the case.

Discussion

This case illustrates the advantages of the using continuous data collection in clinical decision making. As part of the Patterson and Forgatch (1987) intervention, parents must learn to notice and record occurrences of a range of specific target behaviors. Beginning each session with a review of the data in graphic form helped keep sessions focused, and rewarded the family's efforts with visual feedback of progress. The addition of subjective ratings enhanced the parents' sensitivity to the relationship between Eric's observable behavior and their subjective evaluations of him, and helped us to see the limits of the point system's effectiveness. The use of the FPSRS allowed us to structure our training sessions, monitor the family's progress, and provide immediate and precise feedback. Continuation of data collection allowed us to assess the added effects of the family problem-solving training on Eric's behavior.

Author Notes: David J. Hansen and Rebecca E. Carr are now at the University of Nebraska Lincoln. The authors would like to gratefully acknowledge the many valuable contributions of Robert P. Hawkins to the conceptualization of this case. Please address all correspondence regarding this paper to Douglas W. Nangle, Department of Psychology, 5742 Little Hall, University of Maine, Orono, ME 04469-5742.

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