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# Oppositional Defiant Disorder and Aggression in a Young Man with Mental Retardation: Long-Term Treatment in a Community-Based Setting

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A longitudinal, intensive treatment program is described that was implemented over an 8-year period in a community-based setting for a young man with mental retardation and oppositional defiant disorder with severe physical aggression. The development of this disorder and its systematic treatment are described, with new components added based on improvement in the individual's behavior. The individual made steady progress and has

maintained good behavioral stability for the final three years of the treatment program. This paper highlights the inherent difficulties of applying empirically validated treatment strategies in community-based settings.

## **1 Theoretical and Research Basis**

Psychiatric disorders are more common among individuals with mental retardation than in the general population (Holden & Gitlesen, 2004). One psychiatric disorder that has not received much attention in the field of developmental disabilities is oppositional defiant disorder (ODD). This disorder is characterized by a recurrent pattern of defiant and hostile behavior toward authority figures and may include refusing to comply with requests, being easily annoyed, and losing one's temper (American Psychiatric Association, 2000). Although ODD is a common diagnosis among children and adolescents (Maughan, Rowe, Messer, Goodman, & Meltzer, 2004), its prevalence among individuals with mental retardation is not known.

An empirically validated treatment program has been specifically developed to successfully treat children with ODD (McMahon & Forehand, 2003). This approach includes: (a) high frequency reward trials to teach caregivers to identify and reinforce appropriate behaviors in their children; (b) teaching caregivers to use clear, developmentally appropriate commands with their children and to reinforce compliance; and (c) following through with consistent consequences for the individual's noncompliance including the use of time-out. This treatment program, which requires intensive involvement of significant others in the life of the child as well as regular guidance by a professional, has produced successful outcomes (Kazdin, 2005).

Although studies specifically examining the treatment of ODD in adults with mental retardation could not be found, adapting established treatment strategies to this population within a framework of positive behavior support (Carr et al., 2002) should be effective with two important caveats. First, adults with this disorder and developmental disabilities will be more resistant to changing their long-established behavior pattern than children. Consequently, staff members who implement this treatment program will require persistence in maintaining consistency over an extended period of time and patience in maintaining reasonable expectations for behavior change. Second, community-based residential facilities face inherent challenges when developing, implementing, and maintaining intensive

treatment programs. Among these challenges are staff turnover rates ranging from 40% to 70% (Larson, Hewitt, & Lakin, 2004). Not only does high staff turnover make it difficult for clients living in these settings to adjust to constantly changing staff members, inexperienced staff members can be intimidated by managing individuals with challenging behaviors and experience heightened levels of job-related stress (Hastings, 2002). Some staff members may respond by avoiding individuals with difficult behaviors rather than consistently implementing a prescribed treatment program, thus potentially prolonging treatment. Moreover, the quality of supervision needed to help direct care staff members perform their often complex and demanding work requirements may not always be available (Parsons, Reid, & Crow, 2003). Finally, the relatively high client-to-staff ratios present in many community-based agencies often makes it difficult to respond to a challenging behavior while also being responsible for the care of other individuals.

Further complicating the clinical picture of ODD are behavior problems that may accompany noncompliance. When children with ODD begin treatment to improve their compliance to requests from others, they often respond with significant tantrums. When adults with developmental disabilities and ODD are required to comply with instructions from others, they are more likely to respond with aggressive and destructive behaviors. As physical aggression is a common experience among staff members who work with individuals with mental retardation, an extensive literature already exists on treating the aggressive behaviors that may accompany this disorder. These treatment strategies need to be incorporated in a comprehensive approach to ODD and may include behavioral and pharmacological approaches (Emerson et al., 2000; Grey, McClean, Kulkarni, & Hillery, 2003; & Zarcone et al., 2004) as well as staff training programs to manage aggressive behavior when it does occur (Allen & Tynan, 2000).

The purpose of the present paper is to describe a longitudinal, intensive treatment program that was implemented over an 8-year period with a young man with mental retardation, ODD, and aggressive behavior. Direct care staff in a community-based agency including a residential group home and a workshop setting carried out the program. The treatment strategies were adapted from an empirically validated program for ODD (McMahon & Forehand, 2003)

and included a combination of behavioral strategies and psychotropic medications to address the individual's significant oppositional and aggressive behaviors as well as regular staff training and support efforts. The plethora of complicating factors that impacted this comprehensive treatment program and the outcomes for the individual are highlighted.

## **2 Case Introduction**

The client was a 28-year-old man with mental retardation and cerebral palsy. He was 5'7" tall and weighed 175 pounds. He had a stocky build and was physically strong. The client had right hemiparesis and his fine motor skills were slightly limited on his right extremity; however, his overall coordination and ambulation skills were quite good. He had tonic-clonic, head drop, and staring seizures, which were fairly well controlled with medication. His full scale IQ was 53 and his adaptive skills were at a 6-year level. Following an unremarkable pregnancy, the client was born with the umbilical cord wrapped around his neck and an inoperable brain cyst was discovered in the left parietal occipital region. He was hospitalized for three weeks following his birth and had the normal illnesses of childhood. In order to improve his physical disabilities, two surgeries on his legs and three on his eyes were performed. He attended a special education program in the public school system and lived at home. The client had a long history of being oppositional and defiant at home and school with significant aggressive behavior problems. Prior to completion of high school, the client was admitted to our residential facility because his guardian could no longer safely manage him at home.

## **3 Presenting Complaints**

About 2 months following admission to our facility, the client was becoming increasingly argumentative and oppositional with staff, often refusing to go to bed at night or to get up in the morning for school; he frequently appeared to be angry, lost his temper, and deliberately annoyed other individuals. These behaviors were significantly interfering with his life in the group home and his performance at work. Based on these consistently reported characteristics, he was given the psychiatric diagnosis of oppositional defiant disorder (ODD). In addition, he started to display threatening and aggressive behaviors. These episodes ranged from brief incidents,

such as a slap or punch, to numerous incidents including hitting, biting, spitting, head butting, throwing objects and furniture, and kicking. Major episodes would last up to two hours and required two to three staff members to manage the client's behaviors. Frequently, staff members were injured as either a recipient of the aggressive behavior or when managing the client to protect his safety and that of others. Infrequently, the client also injured other residents (e.g., slamming the van door on a resident's leg when he did not get to sit in his preferred seat). Following these more severe incidents, the client was remorseful and apologetic with staff, and even cried at times. In 1 month alone, he had 46 incidents of noncompliance that escalated into significant destructive and aggressive behaviors.

## **4 History**

The client had a long history of behavior problems. As early as 3 to 4 years of age, his mother recalled consistent difficulty getting him up in the morning and that he often would "wake up swinging." His parents divorced when the client was 10 years of age and there were documented reports of routine parental discord regarding his custody and care. His oppositional behaviors extended to his special education classes at school where he frequently refused teacher requests or participation in school activities. His noncompliance often escalated into aggressive behaviors that were sufficiently serious to warrant regular suspensions from school. This pattern of defiance and aggression continued throughout his childhood and adolescence, and at 19 years of age he required police restraint at school for an episode of severe aggressive and destructive behaviors. When he returned home from that incident at school, he became upset with his mother, destroyed household items, punched his mother, and threatened her with a knife saying, "I will kill you." He was hospitalized for an emergency admission. Upon discharge, he continued to present behavior problems at home and school.

Four months later, he was admitted to our community-based residential facility because his behavior could no longer be safely managed at home. He was admitted to a group home that included 11 other residents and had a 1:4 staff-to-resident ratio. He continued to attend school part time and participated in a vocational training program arranged by the school as part of his transition plan. The latter placement was soon discontinued due to behavior problems.

Shortly after admission, the client began to experience adjustment difficulties. He presented with decreased appetite, sleep irregularities, wanting to make repeated phone calls home, crying episodes, and constantly seeking staff attention and reassurance. He was referred for a psychiatric consultation, diagnosed with an adjustment disorder with depressed mood, and prescribed sertraline (Zoloft). He also was referred for a psychological consultation that resulted in the regular provision of significant one-on-one staff time for emotional support, programs designed to strengthen his adaptive skills, and individual counseling to ease his adjustment to his new residence. He also had weekly home visits that alternated between his biological parents, continued to attend the special education program at school 2 hours each morning, and attended an agency-based, prevocational training center for the remainder of the day. Based on his improved adjustment to the group home and the desire of staff and his parents to move him to a setting that included individuals who were more similar to him in terms of age and functioning level, he was transferred to a different group home. This new home had seven other residents and a 1:4 staff-to-resident ratio. About 2 months following his admission, his depressive symptoms and adjustment difficulties were showing improvement but his past behavior problems were beginning to emerge.

## **5 Assessment**

The assessment began with a careful review of the client's records. Clinical interviews with the client, current residential and work staff members, and the client's mother/guardian and father were then conducted. In addition, the client was referred for a medical evaluation to rule out possible underlying physical problems for his behavior problems. A formal functional analysis of the client's oppositional and aggressive behaviors was conducted by having staff document each incident as well as the antecedents and consequences for a 1-month period. A review of these records showed that a consistent trigger for the noncompliance was staff requests, particularly in situations that were difficult for the individual (e.g., getting up in the morning, completing daily living skills, going to bed at night). When staff members attempted to follow-through with requests, the individual's noncompliance often escalated into verbal and physical aggression. The data also confirmed that the client's difficulties occurred at a

frequent and severe level, often requiring significant staff intervention time to manage.

## **6 Case Conceptualization**

In reviewing the client's history and current record of antecedents, behaviors, and consequences pertaining to the oppositional behaviors, it was clear that the majority of the client's refusals were maintained by negative reinforcement. He had learned to avoid or escape from requests that he found unpleasant by refusing to comply. Further, he had learned to quickly escalate his behavior into aggression to avoid repeated requests from others. Given his size and strength, it was understandable why his school staff, parents, and some current staff found it easier at times to not insist on the client's compliance rather than have to manage significant aggressive behaviors. Based on this analysis combined with the client's behavioral history and present developmental level, a treatment plan was developed and implemented to address these concerns. Given the long history of the client's oppositional and aggressive behavior pattern, it was evident that the treatment program would need to be gradual, additive in nature, and long-term to reverse this well-ingrained behavior pattern.

## **7 Course of Treatment and Assessment of Progress**

The general treatment approach entailed a program that followed the general format recommended by McMahon and Forehand (2003) and included three major features: (a) a limited number of daily staff requests reflecting clear and reasonable expectations for the client's behavior, (b) positive reinforcement for compliance with staff requests, and (c) clear consequences for noncompliance and aggressive behaviors. We modified this empirically validated program for children with our adult client by limiting requests to only those that were essential, frequently changing rewards to meet the client's present interests, and ensuring sufficient staff members were available to follow through with consequences for noncompliance and aggression.

An assessment of the client's reinforcer preferences was made prior to the onset of treatment (Fox & DeShaw, 1992). The client had a wide range of reinforcer interests including spending time with staff,

going on community outings, and having money to purchase snacks and items for his personal use (e.g., magazines, compact discs, etc.).

Psychological consultations were scheduled on a monthly basis to review the client's progress and make adjustments in the treatment program. All direct care staff members from his group home and work setting were regularly trained in the client's treatment program at team meetings. A brief list of his specific procedures (treatment protocol sheet) was made available to assist new staff or staff members who may have been pulled from other homes to work with this client. Supervisory staff members were on call if needed to support the direct care staff in implementing the program. The treatment plan, divided into distinct phases, is described below.

### *Treatment Phase 1: Token Reinforcement and Response Cost*

A routine was established for bedtime at night and wakeup time in the morning with clear requests that were provided in a firm, matter-of-fact manner. For example, on weekdays he was required to get up in the morning at a specified time and get ready for school, including completing basic personal hygiene tasks, getting dressed, having breakfast, and getting on a van to transport him to work. There also were programs that he participated in the evening such as exercise, room care, and a bedtime routine to ensure that he went to sleep at a reasonable time. A simple reinforcement program was instituted, where the client could earn stickers for complying with his a.m. and p.m. routine, with 10 stickers needed to earn a special outing with staff. If he chose to refuse a staff request or became aggressive, he lost the opportunity to earn a sticker.

At the prevocational training center that he attended each day after 2 hours at school, he was encouraged to work on jobs that provided him with an income. However, he was only required to stay in his immediate work area during work hours; he was permitted to refuse to work if he chose to.

His initial treatment plan was implemented for approximately 6 months. Although initial success was observed in reducing noncompliance and aggressive episodes, staff reported that the client continued to have consistent problems getting up in the morning, following visits to one of his parent's homes, and with new staff

members who were assigned to work at the group home. Also, the client was showing less interest in the token program.

### *Treatment Phase 2: Monetary Reinforcement and Time-Out*

For the first major programmatic change, we replaced the stickers with money and expanded it to include not only his a.m. and p.m. routines but also other activities throughout the day. The client could earn 25 cents each time he completed his a.m. tasks, programs to improve his adaptive skills, assigned work tasks, and his p.m. routine. Similar to the sticker program, he could also earn a one-on-one outing for having collected a predetermined number of quarters. For noncompliance, the client was given one reminder that he needed to follow staff requests. If he failed to comply, he received a 5-minute time-out in a room that was free from distractions and attention from others. If he refused to go to the time-out location, he was escorted. If his behavior escalated into aggression, his hands were held at his sides for 1 minute or until he was calm. This treatment plan was implemented for about 9 months.

The second phase of the treatment plan was having a positive effect, but it was challenging for staff to implement consistently with the 1:4 staff-to-client ratio. Also, episodes of the client's defiance and related aggression, although reducing in frequency, were escalating in severity and had taken on what staff members described as a "rage quality." The client also added throwing chairs and biting to his aggressive episodes. Staff members were routinely injured when managing the client and, infrequently, other clients who got in the way of the client's aggressive outbursts also were injured. Staff members were increasingly frustrated and back-up supervisory staff members were made available to assist the client during difficult times (e.g., a.m. routine). During this phase and as a result of the injuries to other clients, the continued placement of the client in this community-based agency was in jeopardy. Also during the second phase, the client graduated from his high school program and was required to adjust to working at the vocational center full time.

### *Treatment Phase 3: Compliance Training and Physical Restriction*

At this point two significant changes were made. First, the client was transferred to a group home that had a 1:2 staff-to-client ratio with a veteran staff experienced in working with very challenging clients. Second, in order to gain the client's compliance at his home and work settings, he was enthusiastically approached by staff and given short, specific instructions to complete each task or to follow a request. Further, he had up to 5 minutes to initiate compliance on his own; if he refused, staff would repeat the request and provide physical assistance as needed (e.g., helping him get up and out of bed, returning him to his work area). When he chose to comply, he was complimented and earned the prescribed reward. In addition, all verbal aggression such as swearing, name-calling, and yelling was ignored. When he displayed any physical aggression including hitting, kicking, biting, spitting, pushing, or throwing objects, he was now given a 1-minute arm wrap that was followed by the 5-minute time-out. When necessary, he was escorted to the location by two staff members. At times, he required repeated arm wraps before he was sufficiently calm to be escorted to the time-out location. This treatment plan was in place for more than 3 years. As the client responded to the firmer consequences for his oppositional and aggressive behaviors, he started to refuse planned outings with other individuals from his group home and disrupted work activities, both of which interfered with the other clients' quality of life.

### *Treatment Phase 4: Changing Environments*

The final treatment modification was for the client to lose the opportunity to participate with his peers for an extended period of time when his behavior significantly interfered with them. If the client chose to refuse a planned group outing, he was taken to another group home while his housemates went on the outing. If he refused to work, he was required to spend the remainder of the workday with others who were learning prevocational skills and not earning wages for contracted work. This treatment component along with the previous treatment plan was implemented for about 2 1¼2 years.

## *Psychiatric Treatment*

In addition to the client's behavioral treatment program, he and his staff participated in regular psychiatric consultations. At admission, the client was taking valproic acid (Depakote) and gabapentin (Neurontin) for seizures. Shortly after his admission, he was diagnosed with an adjustment disorder with a depressed mood and prescribed sertraline (Zoloft). Approximately 1 year after the client's admission, risperidone (Risperdal) was added as his aggressive and destructive behaviors escalated in frequency and severity. As the client's behaviors reached crisis levels with several staff and other residents sustaining injuries, the dosage of risperidone was increased and olanzapine (Zyprexa) was added. Following the addition of this latest medication, the client began to show some sedative effects from the combination of medications and was sleeping more during the day. He also was becoming more defiant when staff would attempt to wake him in the morning or when he fell asleep at work. The olanzapine was gradually reduced and then discontinued. He remained on risperidone throughout the treatment program. His progress was routinely assessed through regular psychiatric consultations and he was carefully monitored for possible medication side effects.

## *Results*

Despite the fact that the client's noncompliance was his most frequent behavior problem, the primary data collected to evaluate the treatment program was the frequency of aggressive episodes. The rationale for this decision was that these episodes consistently co-occurred with a noncompliance incident and required immediate staff intervention and documentation. Consequently, we had confidence that these aggressive episodes would indirectly reflect the individual's noncompliance and be reliably recorded in this community-based setting. Given the length of treatment, the aggressive episode data were summarized in 3-month intervals over the multiyear treatment program and follow-up and are shown in Figure 1. Information regarding changes in residence and significant medication changes are also included in the figure. We computed a treatment effect size by comparing the client's average number of aggressive episodes during first treatment phase with the average number of episodes obtained for each subsequent treatment phase and for the follow-up condition. The effect sizes were computed using the mean baseline reduction

formula (Campbell, 2004), which is calculated by subtracting the mean aggressive episodes during each treatment phase by the mean episodes during the first treatment phase, dividing this mean difference score by the mean episodes during the first treatment phase, and then multiplying by 100.

During the first phase of treatment, the aggressive episodes reduced in frequency from nearly 70 in the first 3 months of treatment to less than 30 in the second 3-month period. The average number of aggressive episodes occurring each month was 20.33 ( $SD = 14.29$ ). During the second phase of treatment, the client initially responded with 50 aggressive episodes in the first 3 months of program implementation. This number reduced to 15 in the last 3 months of this treatment phase. The average number of aggressive episodes per month was 13.11 ( $SD = 8.84$ ). The change in the frequency of aggressive episodes from phase one to phase two of treatment produced a moderate treatment effect size (35.5). During the third phase of treatment, an immediate increase in aggressive behaviors occurred. In fact, the frequency during the second 3-month period of this treatment was the highest since the start of the program (over 80 episodes). The aggressive episodes rapidly decreased after this spike in behavior to their lowest level since treatment began. Then in the latter half of the third phase in treatment, the client's behaviors began again to escalate in frequency. Overall, the average number of monthly aggressive episodes during phase three was 9.37 ( $SD = 8.77$ ), which produced a treatment effect size of 53.9.

During the fourth and final phase of treatment, the frequency of aggressive episodes reduced dramatically and by the second 3 months of implementation, the client had reached the lowest levels of aggression since treatment began (less than 5 total episodes in 3 months). His average monthly number of aggressive episodes for the fourth phase of treatment was 1.90 ( $SD = 3.77$ ), which produced the largest treatment effect size when compared to the first phase of treatment (90.7).

## **8 Complicating Factors**

Contributing to the historical development of this client's behavior problems was a long, documented history of family discord. The mother and father had different perspectives on what was best for

their son and how to manage him. During treatment, staff reported that his parents were becoming involved in contesting guardianship. The client would often get off the phone following a conversation with a parent and become more oppositional and aggressive. The client also consistently demonstrated significant behavior problems when he returned from home visits and was frequently difficult to manage for a day or two afterwards. Through a number of meetings and phone calls with the parents, the issues at home that contributed to his difficulties were gradually resolved.

This was a complex treatment program, which required adjustments over time and significant and consistent staff efforts to implement. The first group home did not have the necessary staff-to-client ratio to consistently implement this program. Also given the client's physical size and history of injuring staff, it was not uncommon for some staff members to be frightened and intimidated by this client and reluctant to implement the required treatment components. Unfortunately, although these staff reactions are understandable, the resulting inconsistencies in program implementation undoubtedly prolonged treatment.

When the client was transferred to a home with veteran staff members and an improved resident-to-staff ratio, a number of factors continued to prolong treatment. The client continued to test staff, particularly new staff or staff members who had been pulled from other homes to provide coverage for regular staff who were absent for illnesses or vacation. Also contributing to the increase in behavior near the end of the third treatment phase was the loss of a key supervisory staff member who was previously present when the client would have difficulties. A number of new direct care staff members were hired and placed at this group home. When this supervisor left, the home experienced some program drift because the new staff members were not as consistent in implementing the program. Once this issue was identified, new staff training occurred and more supervisory presence was added to the home at difficult times for the client.

Psychotropic medications, in addition to seizure medications, were used. There was good consensus among staff members that the medications helped the individual be more easily redirected and less easily agitated, which is consistent with the findings from the literature (Zarcone et al., 2004). Given that the medications were added and changed throughout the treatment program, their unique contribution

to the outcomes cannot be determined. However, without the combined behavioral and medication treatment program that led to gradual improvements in the client's behavior, it was evident that the client would have been transferred to a more restrictive state-operated facility.

## **9 Managed Care Considerations**

This client initially presented with a severe and long-standing psychiatric disorder in addition to his intellectual disability. The potential of this individual to injure others quickly became apparent shortly after his admission to our residential facility. Clearly, it would have been very difficult if not impossible to treat this young man on an outpatient basis. He required a residential placement that had the necessary resources to implement a complex treatment program with sufficiently trained staff. In the absence of sufficient resources at our community-based facility, this individual would have been transferred to a state institution with increased costs and restrictions.

## **10 Follow-Up**

Based on the staff report, as the client's aggressive behavior decreased in frequency and severity, he became increasingly more compliant, less angry, and more fun to interact with. The earlier signs of a depressed mood, which appeared to be related to his initial adjustment to a residential placement, were no longer present. His improved emotional and behavioral self-control has allowed him to participate in a variety of activities including Special Olympics, Boy Scouts, and a dance troupe. He routinely went on supervised group outings and unsupervised shopping trips with peers. He also attended summer camp and other recreational activities offered by the community. Based on his continued behavioral improvement, the client was transferred to a new group home that was less treatment intensive and had a 1:3 staff-to-resident ratio. His treatment program was maintained in this new setting. The behavioral treatment procedures were now well established and the staff was comfortable in implementing them and making minor changes when needed (e.g., changing the reinforcer based on the client's wishes). The psychological consultations were scheduled less frequently and then discontinued; he continued to have psychiatric consultations that were designed to systematically reduce his psychotropic medications over

time. His psychiatric status was considered as significantly improved based on reductions in behavior problems and a positive change in mood. There were a few occasions when he tested new staff, but they were prepared to implement the treatment and did so. The average number of aggressive episodes per month during the first year of this new placement was 0.38 ( $SD = 1.39$ ) and produced an effect size of 98.1.

## **11 Treatment Implications of the Case**

This client's referral problems were consistent with a diagnosis of ODD and reflected the challenges faced by many practitioners who work with adults with developmental disabilities presenting with what often appear to be intractable behavior disorders. The treatment procedures used were well grounded in social learning theory and were consistent with those reported in the literature (Emerson et al., 2000; Kazdin, 2005; McMahon & Forehand, 2003). The frequency data collected for aggressive episodes demonstrated that the client did significantly improve over time from the beginning of treatment (mean aggressive episodes per month = 20.33) to the follow-up condition ( $M = 0.38$ ) and has maintained good behavioral stability for more than 3 years. Although the research design of this single subject case study was additive and did not include a return to baseline conditions for obvious clinical reasons, the overall effect size when comparing the client's monthly aggressive episodes during the first phase of treatment and the follow-up condition was very high (98.1).

## **12 Recommendations to Clinicians and Students**

In conclusion, any professional or student who works with clients with mental retardation and significant psychiatric disorders recognizes that the real clinical world is messy and usually does not conform itself well to traditional research designs. However, as this case illustrates, through the accurate diagnosis of ODD and the development of an appropriate, flexible, and sustained treatment program grounded in social learning theory, one can and should expect to attain significant clinical outcomes that can make a contribution to the literature. In the present case, the client's behavior has been stable for nearly 3 years with only minor incidents occurring infrequently. For similar success to be achieved with individuals presenting with ODD, professionals must remain confident in the

chosen treatment direction, be flexible and fine-tune the treatment program when necessary, provide ongoing staff support, and remain vigilant regarding the consistency of treatment implementation. With consistency and patience, despite the multitude of complicating factors that affect a client's behavior and treatment effectiveness, successful clinical outcomes and an improved quality of life for the individuals we serve can be achieved.

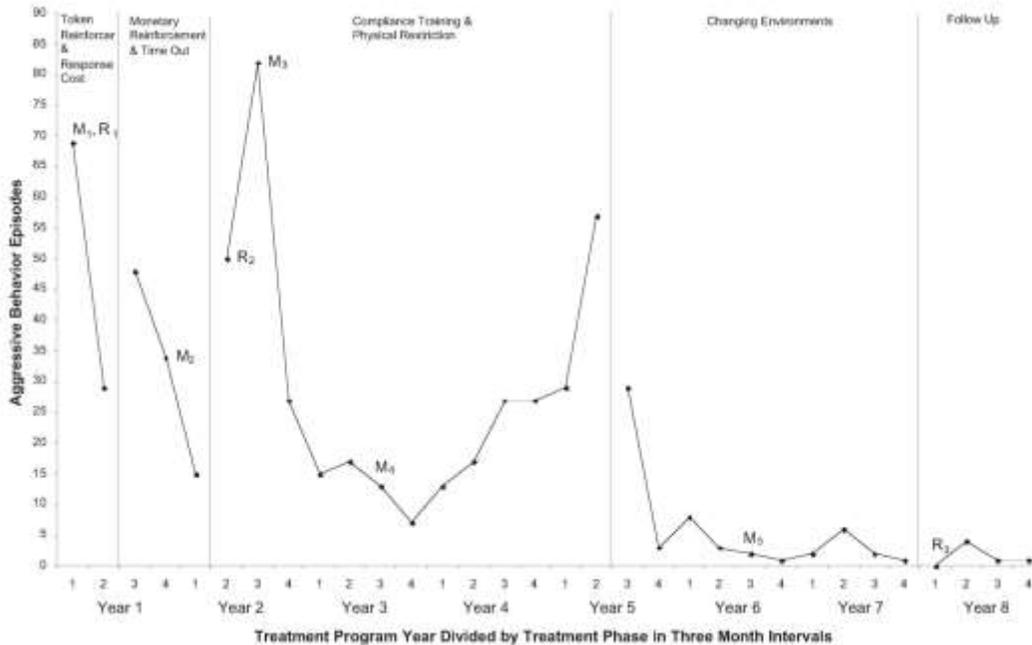
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## Appendix

**Figure 1: Frequency of Aggressive Behavior Episodes Aggregated in Three-Month Intervals over Eight Years of Treatment by Treatment Phase and Follow-Up Conditions**



Note: M1 = Medication change: sertraline started  
M2 = Medication change: risperidone started  
M3 = Medication change: risperidone increased, olanzapine started  
M4 = Medication change: sertraline decreased, olanzapine discontinued  
M5 = Medication change: sertraline discontinued  
R1 = First residential move to a group home with a 1:4 staff-to-client ratio  
R2 = Second residential move to a group home with a 1:2 staff-to-client ratio  
R3 = Third residential move to a group home with a 1:3 staff-to-client ratio