PEDIATRIC EMOTIONAL DYSREGULATION AND BEHAVIORAL DISRUPTIVENESS TREATED WITH HYPNOSIS: A Time-Series Design

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Abstract: A case of pediatric oppositional defiant disorder (ODD) with concomitant emotional dysregulation and secondary behavioral disruptiveness was treated with hypnosis by means of the hypnotic hold, a method adapted by the authors. An A-B-A-B time-series design with multiple replications was employed to measure the relationship of the hypnotic treatment to the dependent measure: episodes of emotional dysregulation with accompanying behavioral disruptiveness. The findings indicated a statistically significant relationship between the degree of change from phase to phase and the treatment. Follow-up at 6 months indicated a significant reduction of the frequency of targeted episodes of emotional dysregulation and behavioral disruptiveness at home.

Campbell (1995) characterized the preschool years by high activity, defiance, and aggression. In addition to this characterization, there is growing agreement that developmentally excessive and/or deviant levels of these behaviors can occur among preschool-age children (Egger & Angold, 2006; Keenan & Wakschlag, 2004) and are responsible for causing significant discord within families as well as significant impairment in the lives of these children (Keenan & Wakschlag, 2000; Lahey et al., 1998). Perhaps the most alarming finding is that behavioral disruptiveness is stable over time, with 70% to 80% of older preschool-age children with Oppositional Defiant Disorder (ODD; Lahey, Pelham, & Loney, 2004) and approximately half of younger preschool-age children with behavior problems (Lavigne et al., 1998) continuing to show clinically significant behavior problems when they reach school age.
Disorders of Disruptive Behavior: Oppositional Defiant Disorder

According to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 1994), oppositional-defiant disorder (ODD) refers to a recurrent childhood pattern of developmentally inappropriate levels of negativistic, defiant, disobedient, and hostile behavior toward authority figures. ODD-related behaviors have been shown to have extremely deleterious effects on interactions between children who exhibit such behaviors and their adult caretakers (Stormschak, Speltz, DeKlyen, & Greenberg, 1997). Children with comorbid ODD and emotional dysregulation are at particular risk for adverse outcomes, including the development of conduct disorder (CD; Greene, Biederman, Zerwas, Monuteaux, Goring, & Faraone, 2002).

The principal feature of ODD includes a pattern of negativist, hostile, and defiant behavior lasting at least 6 months, during which four or more of the following characteristics are present (Maxmen & Ward, 1995):

1. Often loses temper and displays outbursts and instances of behavioral disruptiveness;
2. Often argues with adults;
3. Often actively defies or refuses to comply with adults’ requests or rules;
4. Often blames others for his or her mistakes or misbehavior;
5. Often angry or resentful;
6. Often spiteful or vindictive.

The presence of these traits must cause impairment in social and academic functioning (Maxmen & Ward, 1995).

The presentation of ODD usually begins by age 8 and usually no later than adolescence (Maxmen & Ward, 1995; Rey, 1993). Current research (Keenan & Wakschlag, 2000; Lahey et al., 2004); however, corroborates clinical observations and hypotheses about the presence of ODD in preschool-age children. The literature also documents the propensity for emotional dysregulation and behavioral disruptions in these children (Egger & Angold, 2006). The disruptive behaviors are most invariably present in the home and not always at school or with other adults. In some preschool children (Keenan & Wakschlag, 2000), the behavioral outbursts are displayed in the home and later manifest outside, mainly in school. Without a good history, some children with ODD are hard to diagnose because they often show little or no signs of the disorder in the pediatrician or psychologist’s office (Keenan & Wakschlag, 2000).
Emotional Dysregulation and Behavioral Disruptiveness

Emotion regulation has been defined as the “extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions . . . to accomplish one’s goals” (Thompson, 1994, pp. 27–28). Deficits in emotion regulation skills have been tied to most forms of childhood psychopathology (Cicchetti, Ackerman, & Izard, 1995) and associated with a host of deleterious outcomes, including poor social functioning (Hubbard & Coie, 1994), low academic/school achievement (Greenberg, Kusche, Cook, & Quamma, 1995), and psychological maladjustment (Casey, 1996; Garber, Braafladt, & Zeman, 1991). On the other hand, efficacy in emotion regulation skills has been tied to medical health, including (a) direct effects of positive affect on physiology, especially the immune system, (b) the information value of emotional experiences, (c) the psychological resources engendered by positive feeling states, and (d) the ways in which mood can motivate health-relevant behaviors (Salovey, Rothman, Detweiler, & Steward, 2000).

Epidemiological studies indicate that disruptive behavior problems affect 5% to 10% of children and account for more than 50% of referrals to mental health agencies. Disruptive behaviors in childhood typically include hyperactivity, impulsivity, inattention, oppositionality, defiance, aggression, and disregarding the rights of others (Frick, 1998; Hinshaw, 1994). When untreated, disruptive children are prone to experience rejection from peers, school-related problems, and struggles getting along with parents and teachers (Waschbusch, 2002). Budman, Bruun, Park, Lesser, and Olson (2000) defined behavioral disruptiveness in children as explosive outbursts that resemble Intermittent Explosive Disorder. These authors further posited that such outbursts may reflect dysregulation of diverse domains of brain function. Moreover, their findings indicated that outbursts were more likely to demonstrate significant comorbid conditions, particularly ODD.

The child in our study had been tried on behavior therapy methods unsuccessfully. He had been commended when his behavior was appropriate. This method was supported by the principle that children will often exhibit compliance and respond better to positive reinforcement than to punishment for bad behavior. In an attempt to extinguish his explosive outbursts, his parents ignored the inappropriate behavior. Ignoring the behavior of angry outbursts was expected to reduce future occurrences. This failed, as well as efforts to give the child physical activities to “let off steam,” such as outdoor play and exercise. The parents were left with removal of the child to a quiet place if the angry outburst became too intense. Although this measure diffused the
situation until the child was able to gain some emotional control, it failed in terms of extinguishing future episodes.

The present study operationalized emotional dysregulation and behavioral disruptiveness as an episode of emotional explosiveness with out-of-control behaviors that create a potentially physically injurious situation for the child as well as others in the immediate area. The episode typically showcases behavior that encroaches and interferes with other people’s activities. It is a behavioral picture in which intervention is immediately necessary as assaultive behaviors as well as destruction of property can take place. The behavior proves refractory to efforts by the parent to control the child and the only alternative is to forcibly restrain and segregate the child to a secure place.

**TREATMENT OF EMOTIONAL DYSREGULATION AND BEHAVIORAL DISRUPTIVENESS**

Diverse psychosocial treatment approaches have been applied to children’s ODD-related behaviors (Kendall, 1985, 1991). Sixteen evidence-based treatments have been identified as probably efficacious per Chambless et al.’s criteria (Eyberg, Nelson, & Boggs, 2008). In general, these treatment modalities tend to emphasize parent training as the first-line approach for intervention. For example, parent training (PT), behavioral family therapy, and parent-child interaction therapy (PCIT) have focused primarily on altering patterns of parental discipline that contribute to the development of oppositional behavior and problematic parent–child interactions (Eyberg, 1988; Kazdin & Weisz, 1998). Skills typically taught to parents in such programs include positive attending, use of appropriate commands, contingent attention and reinforcement, and use of a time-out procedure (McMahon & Wells, 1998).

There is minimal evidence for psychopharmacological treatment of ODD, except in cases where comorbid attention deficit/hyperactivity disorder (ADHD) is present. The principal finding from the MTA Cooperative Group (2004) was that combined treatment (e.g., integration of behavioral and medicine management modalities) was not significantly superior to medicine management for improvement of ADHD symptoms. Combined treatment, however, was effective in treating other non-ADHD domains, including aggressive behaviors, internalizing symptoms, parent-child relations, and reading achievement scores (McMahon & Wells, 1998). Alternative models of intervention have placed relatively greater emphasis on cognitive factors underlying ODD rather than on behavior per se (Crick & Dodge, 1996; Kendall, 1985, 1991). These models have focused on addressing the cognitive deficiencies (a lack or insufficient amount of cognitive activity...
in situations requiring activity) and/or cognitive distortions (active but inaccurate or maladaptive cognitive processing) of oppositional or aggressive children. Various intervention models have been identified as "probably" efficacious (Greene et al., 2004).

### Hypnotherapy of Emotional Dysregulation and Behavioral Disruptiveness

Kaiser (2011) employed a developmental psychopathology perspective and outlined a hypnotic approach for individualized interventions to enhance underdeveloped resources (e.g., locus of control, discrimination of realistic risk appraisal, and coping capacities). The author targeted self-regulation of emotional, cognitive, behavioral, and psychophysiological arousal and reactivity.

Because the treatment under study in this investigation entailed parental involvement, Linden’s (2011) article poignantly elucidated the role of parents in their children’s treatment with hypnosis and considered how, when, and to what capacity to incorporate parents in the actual treatment of their children. She also analyzed how to address attachment and trance between parent and child. Linden is a proponent of teaching parents to pay attention to their use of language with children in order to shift patterns of communication from unproductive to useful.

### Case Study

A 4-year-old Caucasian boy was referred by a child psychiatrist for evaluation and treatment. The psychiatrist diagnosed this patient with ODD with features of emotional dysregulation and behavioral disruptiveness. The clinical history indicated that the patient was diagnosed by the referring child psychiatrist with ODD at 3.4 years old, coincident with the period that his parents were having irreconcilable problems, which eventually led them to divorce. The child was compelled by the court to follow a custodial visitation schedule of 2 weeks at the home of each parent. The emotional dysregulation and behavioral disruptiveness episodes developed subsequent to the court-imposed alternating visitation schedule. These features were first manifest at home then generalized to school. The intensity of these events necessitated that the child be removed from the setting where the outburst took place and placed in a time-out room. All efforts to impose control by the parents were unsuccessful, and the child was expelled from preschool due to the unmanageable and inordinately high frequency of behavioral disruptive episodes. Presently he was not attending preschool. The
mother was expecting the behaviors in question to become manageable before enrolling him in another preschool.

Although the child was free of symptoms of depression, depression is difficult to diagnose in preschool children. Competing diagnoses of depressed mood in association with posttraumatic stress disorder (PTSD) as a result of the divorce and the changes in living arrangements could have played a role. He was oriented and evidenced poor attention skills. There was no evidence of disorders of perception or of thinking. He denied intrusive ideation and did not complain of intrusive images that bothered him. He was not psychotic and evidenced awareness of the control the oppositional attitude exercised over adults. The boy’s prior history of psychiatric and psychological illnesses was negative. There was a positive family history of psychiatric and psychological care for anxiety disorders, bipolar disorder, and depression.

Formulation

There is consensus about the psychological role that adverse life events play in the development of ODD (Montes, Lotyczewski, Halterman, & Hightower, 2012). Psychological factors appear to carry a degree of etiological weight in the development of ODD. That being said, and in view of the fact that there was an obvious concurrent temporal relationship between the parental divorce and the onset of symptoms, psychological factors were strongly suspected in the etiology of this case. The child’s young age limited his ability to articulate the impact of the fracture of his family. As a result, this child’s symptoms were conceived as expressive of a traumatic process. It was further formulated that ODD became the vehicle employed to address the traumatic process. The referring psychiatrist shared this conceptualization and was awaiting the result of the hypnotherapy to commence to treat the child with a focus on the divorce. Hypnotic treatment focused exclusively on the recurrent episodes of emotional dysregulation and behavioral disruptiveness.

Method

The patient was treated with hypnosis by means of the hypnotic hold, a method adapted by the authors for use with preschool-age children who have episodic bouts of emotional dysregulation and behavioral disruptiveness. The hypnotic hold, an adaptation of Stein’s clenched-fist technique (Hammond, 1990), was adapted by the authors to address the physical out-of-control involvement of this case. The hypnotic hold was structured as an immobilizing method as well as an induction technique. The technique is applied by holding/supporting the child firmly by the triceps/upper arms while facing away from the adult. The child is instructed to clench/tighten every muscle group in
his body while standing and to hold the tension for 10 seconds. The parent counts from 1 to 10, the child is then asked to suddenly release the tension, and suggestions of becoming limp like wet spaghetti are provided. The child is then told to pretend to be playing his favorite game or activity. He is expected to remain standing while the adult continues to hold and support the child by the triceps/upper arms. The procedure is terminated when the child agrees that he has regained control. The procedure is designed to be applied at the earliest point in the development of an outburst episode. The doctor demonstrates the sequence in the office followed by the adult’s application of the sequential steps. The activity is introduced as a game and not a treatment per se. The practice sessions at home are to be conducted only during periods of calm and when the child can appreciate the fun of the activity. It is not a discipline strategy, and it is not to be accompanied by recriminations or carried out when the parent is angry and/or upset with the child. Basically, the parent invites the child to play and have fun using the hold. If at any point the child refuses to participate, the activity is to be discontinued and resumed at a later time. The hypnotic hold can be applied as a treatment once the parent and child have mastered the application.

The following represents the sequence of events in the care of this child: Baseline data was collected over a period of 2 weeks at Baseline Phase A. The dependent measure consisted of the number of episodes of emotional dysregulation and behavioral disruption that required removal of the child into a time-out room. Data were collected at the mother’s home during this baseline period. There were two office visits, and the following procedures took place during this period: phone consult with the referring child psychiatrist; diagnostic interview with mother and child; and a review of the treatment plan and first hypnotic induction.

Treatments (Hypnosis Phase B1) with the hypnotic hold commenced and continued on a twice-a-week basis for 2 weeks. The sessions lasted a half hour. In addition, the mother and child rehearsed the hypnotic hold 10 times daily during periods of behavioral stability throughout the study. Data on the dependent measure were as follows: Episodes of emotional dysregulation and behavioral disruptiveness at the home of each parent (requiring removal of the child into a time-out room) were collected throughout the entire study. It is significant that the postdivorce custodial schedule consisted of alternating periods of 2 weeks in each parent’s home. It is equally important that the biological father agreed to cooperate only with data collection. He refused to be involved with the application of the method and, as such, data were collected but no treatment was carried out (interrupted) during this period (Interruption Phase A). Treatment was then resumed for four additional visits, over a period of 2 weeks, (Hypnosis Phase B2). A follow-up was
carried out 6 months later in a joint visit with the child and his mother. There were a total of 11 visits: two during Baseline A, four treatment visits at Hypnosis Phase B1, Interruption A, four visits at Hypnosis Phase B2, and a follow-up.

Statistical Analysis

Statistical analysis of the data was conducted with independent time series analysis of autocorrelated data (ITSACORR; Crosbie, 1993), an interrupted time-series analysis procedure that employs an accurate estimate of autocorrelation and better control of Type I error. ITSACORR provides three statistical tests. The first is an omnibus $F$ test for the determination of an overall effect. If this test in nonsignificant, the analysis ends at this point with a conclusion that the degree of change from one phase to the other is not statistically significant. If the omnibus $F$ test is significant, one then proceeds to examine the two remaining tests: the $t$ test for intercept and the $t$ test for slope. This allows one to determine whether the problem being treated has changed significantly from the first to the second phase (i.e., the intercepts of the two phases are different) and/or if the trend (of getting better or worse) has changed from the first to the second phase (i.e., the slopes of the two phases are different (Borckardt & Nash, 2002). A pertinent point to keep in mind is that, although ITSACORR can maintain an acceptable level of Type I error with as few as five scores per phase, this is not an optimal length and, according to Crosbie (1993), should be considered the absolute minimum. This author recommends 10 to 20 measures per phase in order to obtain a better estimate of autocorrelation.

Results

Result of the ITSACORR omnibus $F$ test for the presence of an overall effect between the Baseline and Hypnosis Phase I was significant at the $p = .017$ level. The SS Intercept was 3.31 at Baseline and 1.37 at Hypnosis Phase I. The corresponding $t$ test for Intercept was significant at the $p = .033$ level. The SS Slope was 0.03 at Baseline and –0.08 at Hypnosis Phase I. The corresponding $t$ test for Slope was not significant at the $p = .283$ level (see Table 1).

Result of the ITSACORR omnibus $F$ test for the presence of an overall effect between Hypnosis Phase I and Interruption was significant at the $p = .003$ level. The SS Intercept was 1.64 at Hypnosis Phase I and 4.01 at Interruption. The corresponding $t$ test for Intercept was significant at the $p = .038$ level. The SS Slope was –0.12 for Hypnosis Phase I and –0.06 for Interruption. The corresponding $t$ test for Slope was not significant at the $p = .68$ level (see Table 2).
Table 1
Baseline to Hypnosis I

Overall Test of Change in Intercept and Slope:
\[ F(2, 23) = 4.88 \quad p = .017 \]

<table>
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<tr>
<th>Phase</th>
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<th>SS Slope</th>
</tr>
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<tbody>
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<td>Phase 1</td>
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<td>0.03</td>
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<tr>
<td>Phase 2</td>
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<td>-0.08</td>
</tr>
<tr>
<td>Change</td>
<td>(-2.27)</td>
<td>(p = .033)</td>
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Table 2
Hypnosis I to Interruption

Overall Test of Change in Intercept and Slope:
\[ F(2, 23) = 3.36 \quad p = .003 \]

<table>
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<tr>
<th>Phase</th>
<th>SS Intercept</th>
<th>SS Slope</th>
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<tbody>
<tr>
<td>Phase 1</td>
<td>1.64</td>
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<tr>
<td>Phase 2</td>
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<td>-0.06</td>
</tr>
<tr>
<td>Change</td>
<td>(2.21)</td>
<td>(p = .038)</td>
</tr>
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Table 3
Interruption to Hypnosis II

Overall Test of Change in Intercept and Slope:
\[ F(2, 23) = 8.52 \quad p = .002 \]

<table>
<thead>
<tr>
<th>Phase</th>
<th>SS Intercept</th>
<th>SS Slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>2.31</td>
<td>0.12</td>
</tr>
<tr>
<td>Phase 2</td>
<td>-1.03</td>
<td>0.10</td>
</tr>
<tr>
<td>Change</td>
<td>(-2.66)</td>
<td>(p = .014)</td>
</tr>
</tbody>
</table>

Result of the ITSACORR omnibus \(F\) test for the presence of an overall effect between Interruption and Hypnosis Phase II was significant at the \(p = .002\) level. The SS Intercept was 2.31 for Interruption and \(-1.03\) for Hypnosis Phase II. The corresponding \(t\) test for Intercept was significant at the \(p = .014\) level. The SS Slope was 0.12 for Interruption and 0.10 for Hypnosis Phase II. The corresponding \(t\) test for Slope was not significant at \(p = .895\) (See Table 3).

These findings indicated that there was a statistically significant probability that hypnotic treatment with the hypnotic hold was responsible for the successful therapy of this case of emotional dysregulation and behavioral outbursts. Omnibus \(F\) tests indicated significant overall changes between the phases of this study. There was a statistically significant change between the Baseline period and Hypnosis Phase I.
The change between Hypnosis Phase I and Interruption was also statistically significant. Last, the change between Interruption and Hypnosis Phase II was also statistically significant. Said differently, the symptom levels improved during the first treatment phase, reoccurred during the interruption of treatment phase, and once again demonstrated improvement during the second treatment phase (see Figure 1). According to Borckardt and Nash (2002), “when the results follow this pattern, one can make a strong argument that the intervention caused improvement” (p. 186).

Follow-up 6 months later found the obtained reduction of episodes to be significant enough to allow the referring child psychiatrist to commence psychiatric treatment and to focus on the familial-precipitating elements of this case.

Limitations

Although the A-B-A-B design controls for many of the threats to internal and external validity (Shadish, Cook, & Campbell, 2002), and it is certainly superior to the A-B design with respect to available inferences, randomization of treatment and baseline-phase beginnings and endings need to be present to allow for causal inferences. The Interruption Phase occurred naturalistically. The onset and duration of these phases were not manipulated by the researchers. This left room for several competing explanations of the observed effects other than that the treatment caused it. This limitation must be a consideration in this study. Nonetheless, this case study brings to light important findings that deserve further attention.
Discussion

The role of psychological factors was strongly suspected in the etiology of this case. As such, this child’s condition was conceptualized as a traumatic process generated as a result of the parents’ divorce. It was further formulated that ODD became the conduit for the child to address the trauma triggered by loss of family unity due to that divorce. Emotional dysregulation and behavioral disruptions became ways for the overwhelming emotions associated with the divorce to be externalized. Through the office treatments with the hypnotic hold the child was conditioned to enter a hypnotic state upon receiving the restraining method. The mother was instructed to rehearse the hypnotic hold multiple times daily at deliberately scheduled times when the child was in a happy and jovial mood. This was done to prevent the child from defining the treatment as another effort by his mother to control and subdue him. The application of the treatment toward emotional dysregulation and disruptive behavior was put into force once the child and mother were proficient in the use of the hypnotic hold. We included steps in the practice sessions in the event that the child refused to participate. The child’s involvement in the specifics of this method was expected to be influenced by the ODD features. Opposing behaviors and refusing to follow parental requests were integral features of this child’s ODD. In order to prevent their exacerbation, the parent was counseled to avoid entering into a contest with the child. In the event of refusal, the parent was instructed to discontinue the practice session and to restart once the child was successfully reengaged in this “game.” This method was exclusively designed for a preschool-age child. Its application in older children may exacerbate the dyscontrol, may escalate the hostility levels, and may transform the application into a forum for the expression of combativeness. The older oppositional child may be more prone to focus on the restraining component of this method and to mount resistance.

The directions required the child to remain standing while becoming limp like spaghetti. This was a contradiction in terms and created confusion in the child that he resolved by entering a hypnotic state. This contradiction was deemed pivotal in the success of this treatment.

References


Mit Hypnose behandelte Kindliche emotionale Dysregulation und Verhaltensauffälligkeit: Ein Zeit-Reihentest

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La dérégulation émotionnelle et le comportement perturbateur pédiatriques traités par l’hypnose: Un modèle de série chronologique

Alex Iglesias et Adam Iglesias

Résumé: Un cas de trouble pédiatrique oppositionnel avec provocation (TOP) incluant dérégulation émotionnelle et comportement perturbateur secondaire concomitants a été traité par « l’emprise hypnотique » (hypnotic hold), une méthode adaptée par les auteurs. Un modèle de série chronologique A-B-A-B, accompagné de répétitions multiples des expériences, a été utilisé pour mesurer la relation entre le traitement hypnотique et la variable dépendante: des épisodes de dérégulation émotionnelle accompagnés de comportements perturbateurs. Les résultats ont indiqué une relation statistiquement significative entre le degré de changement d’une phase à l’autre et le traitement. Le suivi, effectué six mois plus tard, a démontré une réduction significative de la fréquence des épisodes ciblés de dérégulation émotionnelle et de comportement perturbateur des sujets à la maison.

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Trastorno pediátrico de regulación emocional y comportamientos disruptivos tratados con hipnosis: Un diseño de series temporales

Alex Iglesias y Adam Iglesias

Resumen: Un caso pediátrico de trastorno de oposición desafiante con problemas de regulación emocional concomitantes y conductas disruptivas secundarias fue tratado con hipnosis a través del control hipnótico, un método adaptado por los autores. Un diseño de series temporales A-B-A-B con repeticiones múltiples se utilizó para medir la relación del tratamiento hipnótico con la variable dependiente: los episodios emocionales no regulados acompañados de conductas disruptivas. Los resultados indican una relación estadísticamente significativa entre el nivel de cambio de fase a fase y el tratamiento. El seguimiento a 6 meses indicó una reducción en la frecuencia de los episodios emocionales no regulados y las conductas disruptivas en casa.

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