

Understanding Discipline in Families of Children with Attention-Deficit/Hyperactivity Disorder: A Structural Equation Model

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One hundred and fifty-five mothers of children with attention deficit/hyperactivity disorder (ADHD) completed a semi-structured interview, the Parenting Stress Index Questionnaire (Abidin, 1990), to evaluate parenting stress. The Parenting Scale (Arnold, O'Leary, Wolff & Acker, 1993) was also administered to measure dysfunctional discipline strategies. Structural equation modeling was used to test a model in which the independent variables were the Child's Characteristics and the Socio-Educational Status of his or her family; intermediate variables were Parenting Stress concerning the Child Domain and concerning the Parent Domain; and the dependent variable was Parental Discipline. The results confirm our hypotheses. Interventions in these families should therefore incorporate a component focused on Parenting Stress (in both the Child Domain and the Parent Domain), as a determinant of Parental Discipline.

Keywords: parenting stress; discipline strategies; structural equation modeling.

Ciento cincuenta y cinco madres de niños con un trastorno de déficit de atención con hiperactividad (TDAH) completaron una entrevista semi-estructurada y el Índice de Stress Parental de Abidin (1990). También se administró la Escala de Paternidad (Arnolds, O'Leary, Wolff & Acker, 1993) para evaluar estrategias disfuncionales de disciplina. Se plantea un modelo de ecuaciones estructurales en el que se comprueba que las variables independientes son las características del niño y el estatus socioeducativo de la familia; las variables intermedias son el estrés parental, tanto del dominio de los padres como del dominio del niño; y la variable dependiente fue la disciplina parental. Los resultados confirman nuestras hipótesis. Por consiguiente, en las intervenciones con estas familias debe de incorporarse un componente que se centre en el estrés parental, por su papel determinante en el ejercicio de la disciplina parental.

Palabras clave: estrés parental, estrategias de disciplina; modelo de ecuación estructural.

ADHD is a chronic condition that starts in early childhood and lasts into adolescence and even adulthood. Its core symptoms are hyperactivity, impulsivity and inattention. The disorder impacts negatively on children's personal and social development, resulting in low self-esteem, school failure and delinquency (Wolraich et al., 2005). Because of its lifelong persistence and its impact on various areas of social adjustment, ADHD represents a heavy economic burden on society, both in terms of the resources needed for treatment and in terms of the consequent work loss for patients and family members (Swensen et al., 2003).

In recent years, significant advances have been made in understanding the nature of ADHD. Research shows that this disorder is estimated to be 70-80% inheritable, and it is presumed to be polygenic, with several genes contributing small fractions to the total genetic effect (Faraone et al., 2005). But the fact that ADHD is familial and partly inheritable stresses the need to take into consideration the action of environmental factors too. Most experts agree that the heterogeneity of ADHD suggests multiple causal pathways, with genes and environment interacting in multiple ways to produce the final outcome. Therefore, even if we accept the biological predisposition for ADHD, the evolution of the disorder cannot be understood without considering the environmental facets and experiences that take place in social settings, among which the family stands out above the rest.

Parenting stress is often associated with parental dysfunctional discipline, which is characterized by criticism, hostility and low emotional warmth, and this in turn, in children with ADHD, predicts the development of comorbid conduct disorder in adolescence (Taylor, Chadwick, Heptinstall & Danckaerts, 1996). But other variables, such as socio-family factors and characteristics of the child, may also be influencing the disciplinary performance of the parents, either directly or indirectly, via parenting stress (Johnston & Mash, 2001). However, exploring the interrelationships among characteristics of the family and the child, dimensions of parenting stress and parental discipline styles has not aroused much interest up until now among researchers working on ADHD.

Characteristics of the Child

Age of the Child. Younger children with ADHD usually show more disruptive behavior (Strine et al., 2006) and there is a significant negative correlation between the age of the child and the number and severity of ADHD behaviors (McLaughlin & Harrison, 2006). Consequently, age is a factor that may be influencing the stress and disciplinary performance of the parents. In fact, some studies have reported that the parents of younger children with ADHD engage in less effective parenting practices than the parents of older children (Shelton et al., 1998).

ADHD Subtype. Although no firm conclusions have yet been drawn, the data suggest that Combined subtype ADHD

brings more challenges to family life. Parents report that children with Combined subtype ADHD are more likely to be impulsive, less amenable to environmental changes, moodier, and more challenging to rear than children with Inattentive subtype ADHD. Parents of Combined children report more health problems and more conflict situations with their spouses. They also feel less parenting competence, more depressed, less emotionally attached to their children and more overwhelmed in their parenting role (Miranda, Marco & Grau, 2007).

Oppositional Behaviors. Even though the presence of a child with ADHD is usually stressful for the rest of the family members, it seems that the combination of ADHD and oppositional behavior creates the greatest disturbances in family functioning (Anastopoulos, Guevremont, Shelton & DuPaul, 1992). More specifically, regardless of the level of the child's ADHD symptoms, what is most important to the mother's level of parenting distress is how challenging and oppositional she perceives her child to be (Vitanza & Guarnaccia, 1999).

Various studies have found higher levels of hostility and depression in mothers of children with ADHD and comorbid oppositional behavior when compared to mothers of children with ADHD only or to mothers of normally functioning control children (Edwards et al., 2001). It has also been shown how there are more negative mother-child interactions in families of children with ADHD+ODD (Shaw, Owens, Giovannelli & Winslow, 2001).

Temperament. The temperament of the child, which refers to his or her way of reacting to people and to changes in the environment, also has an influence on parenting stress. Children with ADHD are often described as having a difficult temperament, especially with regard to their activity level, attention span and rhythmicity. They have more irregular sleep patterns, which can affect neurocognitive and behavioral functioning and increase inattentive behaviors (Sadeh, Gruber & Raviv, 2002). As a result, there is a negative impact on parental stress and the attachment processes, which can negatively affect the parenting role (Bussing et al., 2003).

Socio-educational familiar status

Adverse socio-familial circumstances affect the functioning of the family and can unleash the appearance of problems in the child (Rutter, Giller & Hagell, 1998). In general, mothers with a lower social level have a greater probability of facing stressful situations, which provoke more intense cognitive-emotional reactions and can negatively affect their lives and the way they carry out their maternal role. This partially explains the fact that low parental educational status is related to a greater probability of using corporal punishment (Pinderhughes, Dodge, Bates, Pettit & Zelli, 2000).

Low parental educational status has been identified as a risk factor for ADHD, and is even more important than

that of multiple births or the presence of complications in the pregnancy or the birth itself (St Sauver et al., 2004). The educational level of the parents also acts as a modulator variable in the efficacy of the treatments. Thus, the combination of medication with behavior modification is more effective than a medication-based treatment in families with a low educational level (Rieppi et al., 2002). These parents are therefore likely to have few resources and too little information about ADHD to manage aggressive and oppositionist behaviors – a deficiency that could be addressed by providing training in behavior modification techniques.

Parenting Stress

Parents of children with ADHD perceive themselves as less competent in their parenting role, and they perceive their quality of life as being lower than that of parents of children without problems (McLaughlin & Harrison, 2006; Whalen et al., 2006). Furthermore, parents of children with the disorder are more often exposed to social criticism due to the inappropriate behavior of their children. Consequently, they can feel the need to shy away from many social situations in everyday life, thus suffering social isolation (Roselló, García, Tarraga & Mulas, 2003). In addition, compared to parents of children without problems, parents of children with ADHD feel significantly more depressed and consider that their parenting role places more restrictions on their personal time (Escobar et al., 2005).

Parents' stress is associated not only with their personal characteristics, like feelings of competence or depression, but also (and to a greater extent) with various characteristics of the child. Thus, parents of children with ADHD rate their children as having less affective and emotional control and as experiencing more difficulties when it comes to concentrating and adjusting to the physical and social environment than do parents of children without ADHD. Likewise, parents of children with ADHD have stronger feelings of a mismatch between the expectations they initially had and the actual physical and emotional characteristics of their children (Miranda, Marco & Grau, 2007).

Dysfunctional Discipline

Several empirical studies have provided information on the use of inadequate discipline methods in families with ADHD-affected children. Their findings usually reveal that parents of children with ADHD use more aggressive discipline strategies than parents of children without ADHD (Miranda, Grau, Marco & Roselló, 2007; Woodward, Taylor & Dowdney, 1998) and that they show higher levels of authoritarian parenting styles than parents of children with emotional disorders (Lange et al., 2005). Different studies in which parent-child interactions have been observed report that parents who have children with ADHD use a more serious tone of voice and make more negative comments

about their children's behavior, as well as setting strict limits but without providing explanations. In contrast, the parents of children without ADHD seem to be less restrictive with their children, and they allow them to develop more independence (Alizadeh & Andries, 2002). Other studies demonstrate that, in the pre-school ages, parents of children with ADHD employ laxer discipline strategies and have less communication with their children than parents whose children do not have ADHD (Keown & Woodward, 2002).

The relationships between Parental Stress and Dysfunctional Discipline

Abidin (1990) considers that stress in the parenting role affects the wellbeing of both parent and child. More specifically, this author suggests that high levels of parent distress, child difficulties and parent-child interactions give rise to increments in negative and authoritarian parenting. Abidin's (1990) theoretical model has received empirical support in both clinical samples and non-referred families, whereas the evidence is sparse in the field of ADHD.

There are empirical findings that show a positive relationship between the stress produced by raising children with ADHD and the use of rather ineffective discipline techniques (Pinderhughes et al., 2000). Furthermore, parents' low level of competence and the child's behavioral dysfunction have been shown to be the strongest predictors of less effective rearing practices (McLaughlin & Harrison, 2006). However, there is a need for studies that, in addition to exploring the interrelationships between parenting stress and discipline techniques, connect these two variables to socio-familiar factors and characteristics of the children themselves. This is precisely the goal of the present study.

The theoretical model initially proposed was based on a review of the literature, and more particularly on the relations put forward in Abidin's (1990) model concerning stress in the parenting role and parenting behavior (see Figure 1). Thus, the factors included were the core indicators of the constructs of Child's Characteristics of Difficulty, Family Socio-Educational Status and Parenting Stress, in order to examine the power of the model to predict Parental Discipline strategies of mothers of children with ADHD. Basically, the model can be summarized in the following hypotheses:

- 1) The latent variable Parenting Stress concerning the Child Domain is influenced by the latent variables Child's Characteristics of Difficulty and Family Socio-Educational Status.
- 2) The latent variable Parenting Stress concerning the Parent Domain depends on the latent variables Child's Characteristics of Difficulty and Family Socio-Educational Status.
- 3) The latent variable Parental Discipline is a function of the latent variables Parenting Stress concerning the Child Domain and Parenting Stress concerning the Parent Domain.

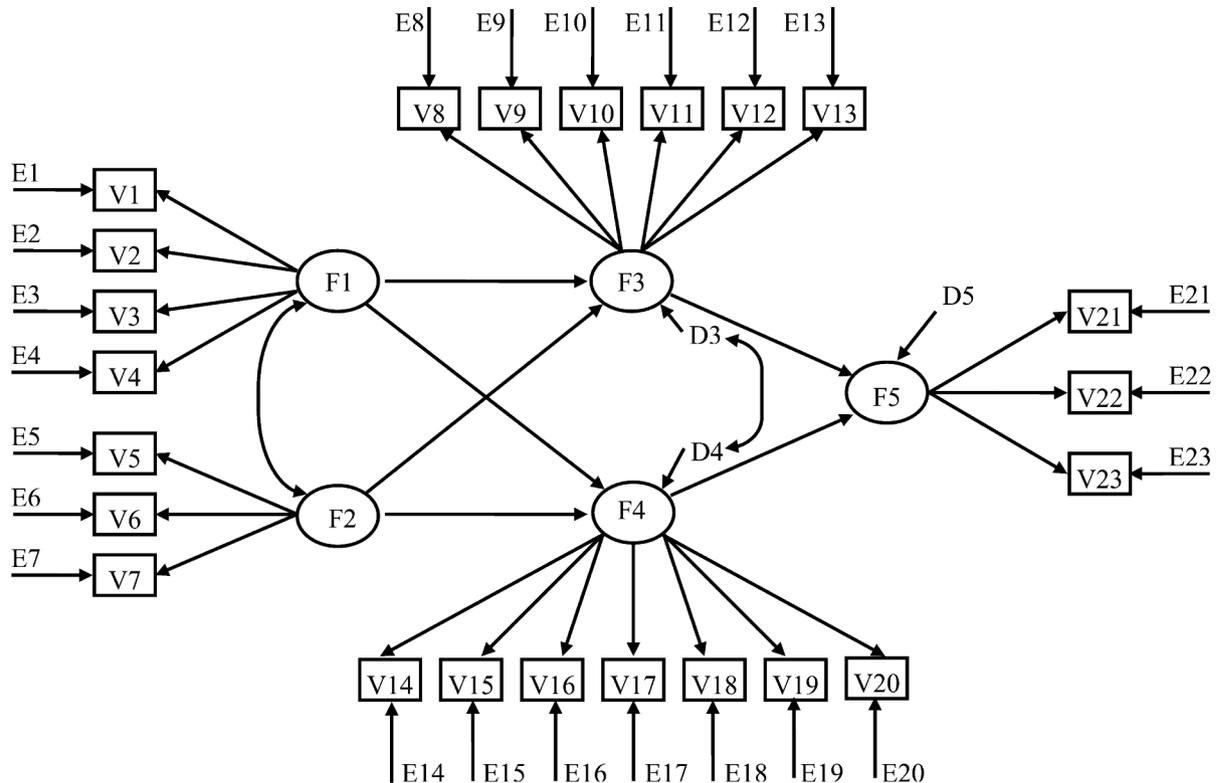


Figure 1. Hypothesized model.

F1: Child's Characteristics, *F2*: Socio-Educational Familiar Status, *F3*: Parenting Stress concerning the Child Domain, *F4*: Parenting Stress concerning the Parent domain, *F5*: Parental Discipline.

V1: ADHD Subtype, *V2*: Oppositional Behaviors, *V3*: Temperament, *V4*: Age of the Child.

V5: Educational level of the father, *V6*: Educational level of the mother, *V7*: Level of information about ADHD.

V8: Distractibility, *V9*: Adaptability, *V10*: Reinforces Parent, *V11*: Demandingness, *V12*: Mood, *V13*: Acceptability.

V14: Competence, *V15*: Isolation, *V16*: Attachment, *V17*: Health, *V18*: Frustration, *V19*: Depression, *V20*: Spouse Relationship.

V21: Laxness, *V22*: Overreactivity, *V23*: Verbosity

In the graphical representation of the structural equation model, the Bentler (2006) notation system was followed with regard to the variables, the prediction errors of the variables, the latent variables and the disturbances, as well as the representation of the effects.

Method

Participants

The Mother participants were recruited from Associations of Parents of Children with ADHD from different regions in Spain (Valencian Community, Catalonia and Asturias). This procedure was considered to be the best way to make contact with families who represent Spanish families with ADHD. To be included in the study, the mothers had to have a child aged between 5 and 13 years with a confirmed DSM-IV diagnosis of ADHD (American Psychiatric Association, 1994). Furthermore, their children had to reach

a minimum T-score of 63 on both the Hyperactivity and Inattention scales from the Conners' Parent form (2001). Finally, mothers were excluded from participating in the study if the child had an IQ below 70, was actively psychotic or had a major medical condition, active seizure disorder, pervasive developmental disorder or Tourette's disorder.

The final sample consisted of 155 mothers of 134 boys (85.5%) and 21 girls (15.5%), with an age range between 5.1 and 12.2 years ($M=120.6$ months, $SD=8.3$). The majority of the children, 84.3%, had been given an ADHD combined subtype diagnosis, while 15.7% of the children had an ADHD Inattentive type diagnosis. Furthermore, 48 children in the sample had shown symptoms of Oppositional/Defiant Disorder (ODD), and 54% of them were under medication at the time of the study – generally stimulant medication (methylphenidate).

All the mothers were white Caucasian, and their Educational status was as follows: 30.4% had completed junior high school; 35.7% had finished secondary school or professional training; 18.5% had a three-year university degree; and 15.4% had a

five-year degree. A high percentage, 82.8%, of the children lived with both biological parents, while 9.2% were one-parent families, and 8% had a step-parent living in the home.

Measures

Family and Child History information

Information on a wide range of family and developmental variables was collected through a semi-structured diagnostic interview (Miranda & Grau, 2005). This interview contained 71 questions with different formats, and it was structured around the following areas of interest: socio-demographics and family structure data; prenatal and perinatal history; development of the child during the first years; age of onset of ADHD; parents' perception of the severity of the disorder; and basic knowledge about ADHD. Furthermore, to obtain information on the temperament indicators, the mothers were also asked questions, which they had to rate from 1 (very low) to 7 (very high), about each of the following elements of temperament: adaptability, rhythmicity, sensitivity, distractibility, mood, persistence, intensity and approach. The child was considered to have a difficult temperament if he or she obtained a score of 3 or less on all of the temperamental characteristics.

In addition, to explore the presence of oppositional behavior symptoms, at the end of the interview mothers were asked about the items on oppositional behavior from the Stony Brook Child Symptom Inventory (Gadow & Sprafkin, 1994), a DSM-IV-keyed symptom checklist. The Inventory includes 10 categories, from which we have only used the 8 items from category B, "Oppositional Defiant Disorder". The mothers rated each symptom behavior on a 4-point scale. A symptom was considered to be present if it was rated as characteristic of the Child's behavior "Pretty much" or "Very much" of the time over a span of at least 6 months.

A diagnosis of ODD required the presence of at least four out of eight symptoms over a period of no less than 6 months at levels that could be considered as being developmentally inappropriate.

Parenting Stress

Stressors to the maternal role were measured by the Parenting Stress Index (PSI, Abidin, 1990), which consists of thirteen subscales: seven measure sources of stress that may be related to dimensions of the parent's functioning (Parenting Stress concerning the Parent Domain), while the other six rate stressful characteristics of the child (Parenting Stress concerning the Child Domain).

Parent Domain: The subscales assess dimensions of the parent's functioning that may constitute a source of stress for the parent. Its subscales are shown in the paragraph that follows.

Sense of Competence: Lack of practical knowledge about child development and limited child management skills.
Isolation: Isolation from family and other social support

systems. *Attachment:* Parents do not have feelings of emotional closeness to the child. *Health:* Deterioration in parental health. *Role Restriction:* The parents experience the parental role as restricting their freedom. *Depression:* Presence of feelings of depression. *Spouse Relationship:* Lack of emotional support from the spouse in child management.

Child Domain: Its six subscales measure the children's qualities that make it difficult for parents to fulfill their parenting roles. These subscales are shown in the paragraph that follows.

Distractibility: Inattention behaviors, such as overreaction, distraction, or short attention span. *Adaptability:* A child's inability to adjust to changes in his /her physical or social environment. *Reinforces parent:* The child is not perceived as a source of positive reinforcement. *Demandingness:* Parents experience the child as placing many demands on them. *Mood:* Affective performance of the child shows evidence of dysfunction. *Acceptability:* It shows a mismatch between the child's physical, intellectual and emotional characteristics and his/her parents' expectations.

The PSI has been used extensively in studies involving the ADHD population (Abidin, 1990; Anastopoulos et al., 1992), being its Cronbach's alpha coefficient = .85.

Discipline Strategies

The Parenting Scale (Arnold, O'Leary, Wolff & Acker, 1993) was used to measure maternal discipline strategies.

The scale consists of 30 items that include common child-rearing behaviors. The parents have to situate their response between two opposite choices on a 7-point Likert scale: a score of 1 indicates a high probability of using an effective discipline strategy, and a score of 7 indicates a high probability of using ineffective discipline strategies. The scale contains the following three subscales:

Laxness or permissive discipline: This subscale indicates few demands on and little control over the children. The parents give in to the demands of the child or reinforce his or her inappropriate behaviors.

Over-reactivity: The items present reactions of excessive frustration, irritability and anger.

Verbosity: The items indicate an excess of threats and recriminations in spite of their lack of effectiveness. No action is taken, and the child's behavior is being reinforced.

The scale has a good reliability and internal consistency (Cronbach's alpha coefficient = .84). Its factorial structure is consistent with the research carried out on parenting styles (Harvey, Danforth, Ulaszek & Eberhardt, 2001).

Procedure

After receiving verbal and written information about the requirements of the study and the confidentiality of the data, all the mothers provided written informed consent to participate in this research. Test administration was divided into two sessions. In the first session, the mothers were interviewed in order to gather family socio-demographic

and child history information. In the second session, participants completed the Parenting Stress Index Questionnaire, which took about 50 minutes to complete, and The Parenting Scale. The interviewing and the administration of the questionnaires were undertaken by one of the authors of this study, a doctoral student. Only mothers who had completed all the tests were included in the study.

Data Analysis

Structural equation modeling (SEM) was used to verify the structural organization of the theoretical model shown in Figure 1, with the EQS program (Bentler, 2006). The Mardia multivariate kurtosis test (1970) yielded a high value (14.29). Furthermore, the observable variables ADHD subtype, oppositional behaviors and temperament are categorical, while educational level of the father, educational level of the mother, and level of information about ADHD

are ordinal. In order for the program to estimate the corresponding correlations (point-biserial, rank-biserial, etc.), it was indicated in the SEM program that the previous values were of a categorical type (Schumacker & Lomax, 2004). Keeping this in mind, a structural equations analysis was performed using the robust estimation method of maximum likelihood (Bentler, 2006; Satorra & Bentler, 1994).

Results

The results of the operationalized theoretical model represented in Figure 1 are shown in Figure 2. Using the fit indices, the final model was found to fit the data: Robust chi-square by Satorra-Bentler=201.067, 222 df, p=.940; Bentler-Bonnet Normed Fit Index=.790; Bentler-Bonnet Non-normed Fit Index=1.034; Comparative fit index =1.000; Root Mean-Square Error of Approximation =.000 (CI:.000-.021).

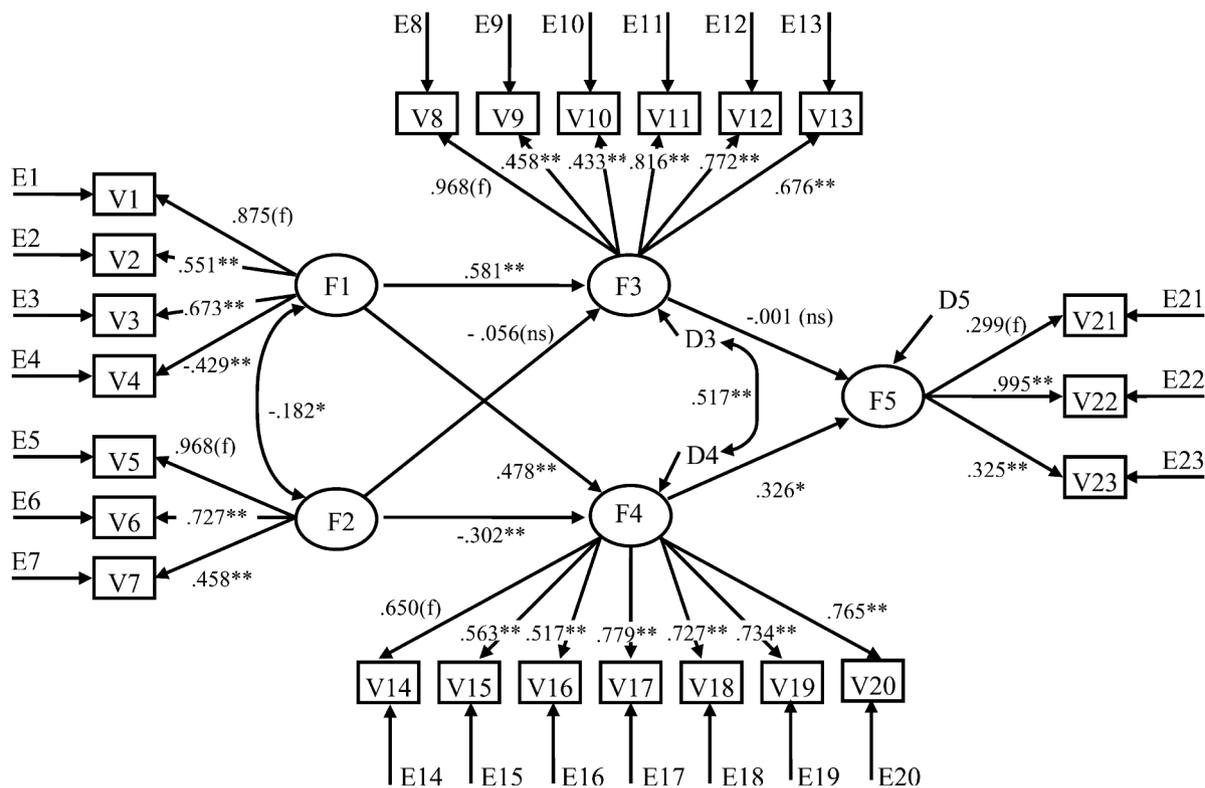


Figure 2. Results of the effects (in standardized scores) of the initial model proposed in Figure 1. F1: Child’s Characteristics, F2: Socio-Educational Familiar Status, F3: Parenting Stress concerning the Child Domain, F4: Parenting Stress concerning the Parent domain, F5: Parental Discipline. V1: ADHD Subtype, V2: Oppositional Behaviors, V3: Temperament, V4: Age of the Child. V5: Educational level of the father, V6: Educational level of the mother, V7: Level of information about ADHD. V8: Distractibility, V9: Adaptability, V10: Reinforces Parent, V11: Demandingness, V12: Mood, V13: Acceptability. V14: Competence, V15: Isolation, V16: Attachment, V17: Health, V18: Frustration, V19: Depression, V20: Spouse Relationship. V21: Laxness, V22: Overreactivity, V23: Verbosity. Note. ns= non-significant, f= fixed effect.; *p < .05, **p < .01

The effects of the relationships between the latent variables are significant, with the exception of the effect of the latent variable Socio-Educational Status on Parenting Stress concerning the Child Domain, and the latter on the latent variable Parental Discipline.

Therefore, the model in Figure 2 is admitted as being the one that represents the relationships among the variables in the most parsimonious way.

The model in Figure 2 now has two statistically non-significant effects, namely, the effect of Socio-Educational Familiar Status on Parenting Stress concerning the Child Domain and the effect of this latter latent variable on Parental Discipline. The latent variable Parental Discipline only receives significant effects from the latent variable Parenting Stress concerning the Parent Domain, while the total effects of the independent latent variables Difficulties of the Child and Socio-Educational Status on Parental Discipline are non-significant (although they have an indirect influence in a non-significant way through the latent variable Parenting Stress concerning the Parent Domain). Note also that the latent variable Parenting Stress concerning the Child Domain is now a structural dependent variable, even though it has its own observable indicator variables. This means that it does not have any influence on any other latent variables, although it covariates in a significant way with the latent variable Parenting Stress concerning the Parent Domain, through the errors ('disturbances') of the respective latent variables (D3 and D4).

Discussion

The purpose of this study was to test, by means of SEM, the interrelationships among Child's Characteristics of Difficulty, Family Socio-Educational Status and dysfunctional styles of Parental Discipline through the intermediate variables of Parenting Stress variables (both concerning the Child Domain and concerning the Parent Domain). Based on the results obtained, we will go on to comment on the most relevant aspects of the final model.

In the first place, backing up the selection of the model variables, all the observable indicators of the construct Child's Characteristics of Difficulty are significantly related to this latent variable. According to other studies, the children with greater difficulties are those who suffer from an ADHD that combines the symptoms of inattention and hyperactivity/impulsivity and manifest oppositionist behaviors and have characteristics of difficult temperaments (Anastopoulos, Guevremont, Shelton & DuPaul, 1992; Bussing et al., 2003; Miranda, Marco & Grau, 2007). Moreover, there is a negative effect of the age of the child with ADHD on the Child's Characteristics of Difficulty, which indicates that the intensity of the problem tends to diminish with age. However, the positive role of age must be interpreted with caution. The majority of the children

in the sample are fairly young (5.1-12.2 years), and it is probable that changes will occur in the tendency observed over the course of their development. It has been shown that for many people with ADHD, adolescence is a high-risk stage for behavior problems with serious and dangerous consequences, and this increases family conflict and parents' perception of the difficulties of their children (Barkley, Anastopoulos, Guevremont & Fletcher, 1992).

Likewise, the observable indicators of the construct of Family Socio-Educational Status (academic level of the father, of the mother and the degree of knowledge about ADHD) are also all statistically significant and good indicators of the construct. At the same time, the Child's Characteristics of Difficulty and the Family Socio-Educational Status are negatively interrelated, so that the higher the family's Socio-Educational Status is, the lower the Child's Characteristics of Difficulty will be, and vice versa. This panorama coincides in general terms with the findings on family adversity and ADHD (Biederman et al., 1995).

With regard to the hypotheses proposed, the findings show that Parenting Stress concerning the Child Domain is a function of the Child's Characteristics of Difficulty (combined subtype, oppositionism, difficult temperament and younger age). Therefore, the more difficulties the child with ADHD presents, the greater the increase in the mother's perception of stressful characteristics of the child will be (that is, distractibility, adaptability, reinforces parent, demandingness, mood and acceptability). Children with ADHD become an aversive stimulus for their mothers, probably due to the challenges presented in rearing them and as a result of a complex conditioning process from dyadic interactions between mother and child. In contrast, Parenting Stress concerning the Child Domain is not influenced by the family's Socio-Educational Status, so that the first hypothesis is only partially fulfilled.

On the other hand, the Family's Socio-Educational Status and the presence of the Child's Characteristics of Difficulty have an influence on the Parenting Stress concerning the Parent Domain of the mothers of children with ADHD, thus supporting the second hypothesis. In agreement with other studies (Anastopoulos, Guevremont, Shelton & DuPaul, 1992; Johnston & Mash, 2001; Podolski & Nigg, 2001), the more difficulties the child with ADHD presents, the more stress is experienced by the mothers in their own maternal functioning, that is to say: low sense of competence, isolation, attachment, health, role restriction, depression and spouse relationship.

Finally, as stated in the third hypothesis, Parenting Stress concerning the Parent Domain has a significant effect on the dysfunctional Parental Discipline style. Replicating the results from other studies (McLaughlin & Harrison, 2006; Roselló, García, Tárraga & Mulas, 2003), the more stress the mothers of children with ADHD experience, the more likely they are to apply Discipline mechanisms characterized

by laxness, over-reactivity and verbosity. However, the Parenting Stress concerning the Child Domain in our model is not found to be a significant predictor of dysfunctional Parental Discipline, although it could have an indirect effect through the relationship it maintains with Parenting Stress concerning the Parent Domain.

Limitations

The primary contribution of our study has been to further our understanding of possible variables of a family nature that influence the discipline mechanisms of mothers of children with ADHD. There are, however, certain limitations to this research. For example, no objective measure of Parenting Stress (such as videotaped parent-child interactions in different everyday life situations or parents' diaries) could be introduced into the assessment procedure. On the other hand, our work has shown the important role that some variables related to the Child's Characteristics of Difficulty have on the Parenting Stress of mothers with ADHD children, namely, the ADHD subtype and the joint presence of ODD symptoms.

However, there are other characteristics of the child that could have been included, such as IQ, birth order, adoption status or sex, among others. As suggested by a review performed by Rhee, Waldman, Hay and Lewis (1999), the precise contribution of shared and non-shared family and genetic influences may differ across boys and girls with ADHD.

It is also important to emphasize that the fact all of our families came from ADHD associations may limit the generality of the results, since associated families are actively involved in the problem to the extent of searching for specialized help.

Another limitation of the study is that, due to its design, no conclusions could be drawn on the cause-effect relationship between sources of Parenting Stress associated with the child and sources of stress associated with parents' characteristics. Longitudinal designs can help untangle the various family variables involved in this complex relationship.

We also want to point out again that, in the majority of cases, it was only the mother who answered the interview and questionnaire. Since the interest of this research is to identify possible sources in the family environment and the characteristics of the child that could have an impact on dysfunctional discipline, more insight could be gained by also including the father's perception.

Clinical and Educational Implications

In spite of the abovementioned limitations, from the analysis of the final model a series of considerations arise which are quite useful for clinical practice. Thus, the stress experienced by mothers of children with ADHD in performing their maternal duties involves a greater probability

of using ineffective discipline procedures. Their way of proceeding tends to be fairly undemanding, permissive, inconsistent and with an excessive negative emotional charge.

One interesting finding in this regard, which was observed in the Multimodal Treatment of ADHD study (MTA), is that neither medication nor behavior management nor combined treatment reduced the high levels of stress reported by the parents who took part (Wells et al., 2000). In the same line, the results from other studies (Harrison & Sofronoff, 2002) suggest that interventions for ADHD aimed only at the level of child behavior are unlikely to alter long-term outcomes. In an excellent review by Chronis, Chacko, Fabiano, Wymbs and Pelham (2004) the authors highlight the fact that, in the past 30 years, Behavior Parent Training (BPT) has been identified and validated as an effective treatment for children with ADHD and conclude that researchers must now focus on modifying and enhancing BPT to address the multiple impairments present in families of children with ADHD in order to achieve maximum clinical gains.

Therefore, the clinician faced with treating ADHD may be able to help families in ways that go beyond increasing structure and managing disruptive behavior. In addition to training in parenting skills (behavior management techniques, e.g. time-out, rewards, response cost, etc.), other skills necessary for living with and raising children with ADHD should also be included. It may be particularly important for the parent and child to form a "good-enough" level of attachment and involvement for social-emotional development to progress normally. A critical focus of interest is to reduce Parenting Stress by improving the parents' feelings about themselves and their children, thus helping them to redefine their perceptions about the child through retraining in attributions and developing their communication and problem-solving skills (Treacy, Trip & Baird, 2005; Anastopoulos, Rhoads & Farley, 2006).

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