

Multiple Complex Developmental Disorder: The “Multiple and Complex” Evolution of the “Childhood Borderline Syndrome” Construct

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ABSTRACT

Objectives: To provide an overview of the history, evolution, and nosology of the diagnostic constructs for “borderline syndrome of childhood,” also known as “multiple complex developmental disorder.” **Method:** The authors synthesized information found via electronic searches of databases (*MEDLINE*, *PsycINFO*, *Current Contents*, *Humanities Abstracts*, and *Social Sciences Abstracts*) and bibliographic directed searches. **Results:** Although early publications (prior to 1980) were either highly anecdotal or lacking in scientific rigor, they were nonetheless noted for their historic value and influence on research trends. The recent publications (1990s) were characterized by more rigorous methodology and greater generalizability. Current classifications, proposals for diagnostic criteria, epidemiological data, and nosological suggestions were summarized. **Conclusion:** The literature supports the creation of a new diagnostic label to describe a population of children whose symptoms are currently subsumed under the labels “borderline” or “multiple complex developmental disorder.” A full characterization of the syndrome, including its evolution, would require prospective studies and may differ from the known evolution for personality disorders and/or pervasive developmental disorders. The authors propose a process by which a new nomenclature is derived. *J. Am. Acad. Child Adolesc. Psychiatry*, 2001, 40(8):954–964. **Key Words:** borderline personality disorder, multiple complex developmental disorder, pervasive developmental disorders, nosology.

The use of *borderline* as a diagnostic or descriptive term was found in the child psychiatric and psychological literature to refer to the following: (1) borderline intellectual functioning (e.g., McGough, 2000); (2) “borderline psychotic” states (e.g., Bonnard, 1967; Ekstein and Wallerstein, 1957; Frankl, 1961); and (3) borderline personality disorder, as defined for both the adolescent and adult populations (e.g., Hill and Rutter, 1994). It is the aim of this review to study a *fourth* usage of the term, namely the “borderline syndrome” of latency-age children (e.g., Robson, 1996), a condition that has also recently been named *multiple complex developmental disorder* (MCDD) (Lincoln et al., 1998; Towbin et al., 1993). Children with this disorder are severely impaired and fre-

quently require inpatient, day-hospital, or residential care in a child psychiatric setting. Neither the borderline nor the MCDD nomenclature has been recognized by the *DSM* child psychiatric classification system. Possible explanations for this lack of recognition may be the elusiveness of the construct (Gualtieri et al., 1983; Robson, 1996), the concerns about its scientific validity (Greenman et al., 1986; Shapiro, 1983; Towbin et al., 1993), and doubts concerning its continuity with adult borderline personality disorder (Greenman et al., 1986; Kestenbaum, 1983; Lofgren et al., 1991). The use of the term *multiple complex developmental disorder* may have resulted from these concerns (Cohen et al., 1986; Towbin et al., 1993).

This article will focus on the nosology of a syndrome characterized by this group of patients. We will also consider a process by which the nosology of this disorder could be derived.

ORIGINS OF THE “BORDERLINE CHILD” CONCEPT

As with adults, the early child psychiatric and psychoanalytic literature used the term *borderline* to refer to children who were apparently neither neurotic nor psychotic but on

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the border between the two groups. It was also used to refer to a population who were believed to be at “the border” of receiving a diagnosis of an organic disorder (Kernberg, 1983), and in response to the psychoanalytic understanding of psychosis in the 1940s and 1950s it was used to describe children who present along the spectrum of early-onset psychoses (Ekstein and Wallerstein, 1954; Mahler et al., 1949; Weil, 1953). These children were characterized as having fluctuating ego states, having tendencies to regress, and suffering from disturbed interpersonal relationships and severe anxiety states.

Anna Freud (1969) later proposed that borderline children suffered from massive developmental arrests, an inability to be comforted by others, poor reality-testing and synthetic functions, and inadequately developed defense mechanisms. She hypothesized that borderline children displaced their libido from the object world onto themselves. Others noted that borderline children manifest anxiety, feelings of extreme loneliness, and fears of annihilation or disintegration (Engel, 1963; Frijling-Schreuder, 1970; Rosenfeld and Sprince, 1963). Pine (1974) emphasized that these children suffer from severe developmental failure or disturbed ego function and object relationships.

These traits of the disorder as it presents in youth (Chethik, 1979; Geleerd, 1968; Marcus, 1963) have also been used to describe the adult borderline personality disorder (Adler and Buie, 1979), including the experience of intense painful aloneness, the history of a developmental failure, and an impaired capacity for object permanence.

The above descriptions of borderline children probably referred to a heterogeneous population (Petti and Vela, 1990) and were hampered by lack of precision in describing the phenomenology observed, the use of different constructs to characterize the disorder, and the inclusion of poorly defined nomenclature.

EARLIEST EPIDEMIOLOGICAL REPORTS

The early cohorts (Aarkrog, 1977; Chiland and Lebovici, 1977; Dahl, 1976; Kestenbaum, 1983; Malmivaara et al., 1975; Wergeland, 1979) served as a springboard to further research in this domain, but lacked diagnostic specificity and rigorous epidemiological standards, suffered from heterogeneity of the samples studied, and did not define the criteria for improvement at follow-up. In these studies, children previously given a diagnosis of “borderline pathology” were found to have follow-up diagnoses ranging from psychosis (mainly schizophrenia and bipolar disorder)

to severe anxiety neuroses and personality disorders (borderline, schizotypal, and schizoid) 5 to 30 years later.

EARLY CLASSIFICATIONS

The Personality Disorder Argument

With the advent of the *DSM-III* (American Psychiatric Association, 1980), interest in operational criteria for psychiatric disorders grew exponentially. Gunderson and Kolb's criteria (1978) for the adult diagnosis of borderline personality were adapted to the pediatric population (Brady, 1981). This was followed in the early 1980s by publications about the use of defined criteria for the diagnosis of the borderline syndrome in youth.

Pine (1983) was one of the first authors to pursue this trend. He adopted the prevailing psychoanalytic perspective, uninfluenced by the Gunderson and Kolb or the *DSM-III* criteria for borderline personality, and proposed that certain features are commonly present in borderline children: (1) malfunctions in the sense of reality and/or reality-testing; (2) failure in the development of signal anxiety; (3) shifting levels of object relations; and (4) excessive dependence of the child's ego structures on the presence of a primary object. He also proposed that borderline children were a heterogeneous group that could be divided into seven subgroups based on clinical presentations:

1. Shifting levels of the ego organization characterized by rapid regressions, disordered thinking, and ego-syntonic affective withdrawal.
2. Internal disorganization (e.g., aggression and psychotic symptoms) in response to external disorganizers (e.g., parental abuse and neglect, substance use, criminality). These symptoms remit rapidly during hospitalization.
3. Chronic ego deviance characterized by the symptoms described in item 2, but present chronically rather than on a reactive basis.
4. Incomplete internalization of the caregiver as occurs in psychotic states and is characterized by reactive regressions similar to item 2, especially upon separation from the psychotic mother.
5. Ego limitation characterized by social inhibition, poor language and cognition, shallow affect, and poor relatedness.
6. Schizoid personality traits characterized by sharp constriction of affective life, emotional distance in human relationships, and preoccupation with fantasy life.

7. Splitting of good and bad images of self and others resulting in a marked contrast between the external pleasantness of the child and the internal preoccupation with hate, violence, and fantasies of world-destruction—all sources of anxiety for the child.

Pine (1986) hypothesized that these children have certain constitutional neuropsychological defects that make for difficulties in learning, in social interactions, and in coping with stressors. The above, coupled with early trauma (e.g., abuse and or illness), result in the child's feeling overwhelmed by environmental stimuli and thus unable to develop normally beginning at an early age. Pine's criteria for this condition seem clinically compelling, but unfortunately they have not yet been validated.

Vela et al. (1983) developed six "consensus" criteria for the diagnosis of borderline pathology in children, based on their review of eight seminal articles (Chethik, 1979; Ekstein and Wallerstein, 1954; Frijling-Schreuder, 1970; Geleerd, 1968; Marcus, 1963; Pine, 1974; Rosenfeld and Sprince, 1963; Weil, 1953). Unlike Pine, Vela et al. (1983) presented some data to support these criteria. Although not formally validated, these criteria are useful in that they represent the first effort to operationalize the diagnosis of borderline pathology.

Bemporad et al. (1982) proposed other diagnostic criteria for this syndrome on the basis of their experience with 24 latency-age children. They observed that "organic impairment," physical abuse, and familial disturbances were common in this population, and they listed the following "associated symptoms": (1) social awkwardness and lack of adaptiveness; (2) neurological "soft" signs; and (3) general unevenness in development.

Bemporad et al. (1982) derived these criteria from a single cohort, but generalization of these findings required epidemiological validation. Accordingly, Bentivegna et al. (1985) reviewed the charts of children labeled "borderline" ($n = 70$) and compared them with two nonborderline psychiatric groups ($n = 70$ and $n = 24$). They found that Bemporad and colleagues' criteria differentiated the three groups reliably, but that none of the symptoms seemed to be pathognomonic. These authors thereby attempted validation of the Bemporad et al. criteria by using a retrospective design, leaving uncertainties as to whether these criteria could withstand testing with cluster analysis in a prospective design.

On the basis of clinical experience, Kernberg (1982) offered the following as yet unvalidated criteria for diagnosis of borderline personality disorder in children: (1)

sudden shifts in the level of functioning; (2) lack of a sense of identity; (3) inability to accept responsibility for their own actions; and (4) inability to experience pleasure in play. Criteria 1 and 2 are reminiscent of Pine's criteria, whereas 3 and 4 appear to be original contributions. Kernberg further associated this disorder with depression and with "minimal brain dysfunction," an outdated term suggesting subtle neurological dysfunction in the absence of a demonstrable neurological disorder.

Using the Diagnostic Interview for Borderlines (DIB) (Gunderson and Kolb, 1978) and the *DSM-III* criteria for personality disorders, Petti and Law (1982) showed that "borderline psychotic" children aged 6 to 12 years could be differentiated into the *DSM-III* categories of schizotypal and borderline personality disorders. This effort suggested that the *DSM-III* still lacked precision when applied to this diagnostic category. This lack of clarity was further reinforced by Gualtieri et al. (1983), who found that 16 children were labeled "borderline" because of their disorganized thinking and irrational, erratic behavior, but did not satisfy the *DSM-III* diagnostic criteria. The authors emphasized the disadvantages these children had because of being labeled "borderline." As further evidence of the lack of clarity with respect to the term *borderline*, Greenman et al. (1986) administered the Child Version of the Retrospective Diagnostic Interview for Borderlines (C-DIB) to child psychiatric patients and found little difference between children identified as borderline and those considered nonborderline. Furthermore, Palombo (1982) maintained that there was little similarity in the dynamics between children and adults characterized as borderline. He hypothesized that the etiology in children may be more closely related to the presence of a minimal brain dysfunction or severe learning disability.

The obvious lack of precision, diversity of criteria, and abundant overlap among the different sets of criteria thus far enumerated for the term *borderline* confound its use.

The Pervasive Developmental Disorder Argument

In 1983, Cohen et al. presented the earliest discussion linking the borderline syndrome and pervasive developmental disorders (PDDs). The authors noted that borderline children suffered from a persistent, stable pattern of developmental deviations, usually apparent by the fourth year of life. This pattern included disturbances in five "sectors" of development (summarized):

1. *Cognitive processes*: difficulties in sorting fantasy from reality and in organizing thoughts rationally and sequentially

2. *Social relations*: isolation from peers, alternating and ambivalent feelings toward adults, oversensitivity to felt rejection, and insensitivity to their impact on others
3. *Anxiety regulation*
4. *Neuro-maturation*: e.g., soft neurological signs and uneven motor development
5. *Activity and attentional regulation*: impulsivity, distractibility, hypo- or hyperactivity

The authors noted the early onset of symptoms in these children, the co-occurrence of organic disorders (e.g., seizure disorders, central language disorders, and encephalopathies), and their association with family history of psychiatric disorder (personality disorder and psychosis). They argued that *DSM-III* criteria for borderline personality disorder were not suitable for children and noted that the childhood borderline conditions were most closely approximated by the *DSM-III* diagnoses of PDDs. However, they believed that *DSM-III* criteria were too restrictive, stating, for example, that the complete lack of responsiveness required by *DSM-III* for the diagnosis of autism is not a criterion consistent with the clinical reality of the syndrome and that language deficits that occur in children with PDD could be subtler than those required by *DSM-III*. They felt that borderline children might be considered to fall in the "atypical PDD" category, especially if future editions of *DSM* better delineated this category and gave it operational specificity.

In a later publication, Cohen et al. (1986) conceptualized PDDs as conditions of uneven patterns of developmental deviation with multiple areas of impairment. They suggested a new diagnostic term which has yet to be validated—multiplex developmental disorder—to suggest multiple and complex disturbances, which they distinguished from autism and atypical PDD and felt could describe some of the children previously given a diagnosis of borderline disorder. They included a subgroup of children with impaired thought process who do not meet the criteria for adult schizophrenia. Children with either multiplex developmental disorder or PDD share the same multiplicity of disturbances. However, the age-of-onset criterion of the *DSM-III* childhood-onset PDD, and the qualitative and quantitative differences between these children and those with autism, would preclude their inclusion into the same category. They sought a single diagnosis to name this population, arguing that the use of several comorbid *DSM-III* disorders (e.g., avoidant, over-anxious, and schizotypal disorders) to characterize them would not do justice to the actual entity observed.

Dahl et al. (1986) began a process of validation of Cohen and colleagues' criteria via a review of nearly 400 preschool children who were characterized to have "deviant human relationships and disorganized, bizarre thinking." Although moving into the domain of quantitative analysis, once again this was a retrospective design.

MORE RECENT STUDIES

Lofgren et al. (1991) presented follow-up data on 19 children clinically diagnosed to have the borderline syndrome according to the Bemporad criteria (Bemporad et al., 1982) between the ages of 6 and 10 years. They were followed clinically for 10 to 20 years, after which they were assessed with the Structured Clinical Interview for *DSM-III-R* (Spitzer et al., 1988) and with the Global Assessment of Functioning (GAF) scale—Axis V of *DSM-III-R* (American Psychiatric Association, 1987). During the follow-up period none of the subjects received a diagnosis of an affective disorder or schizophrenia, despite brief episodes of frankly psychotic behavior and thinking during childhood and the presence of many affective features during both childhood and adulthood. By the time of follow-up, 3 subjects did not meet criteria for any *DSM-III-R* disorder, whereas 16 subjects met criteria for a personality disorder (i.e., antisocial [5], borderline [3], schizoid [3], avoidant [2], schizotypal [1], paranoid [1], and narcissistic [1] personality disorders). In addition, six subjects had substance use disorders comorbid with either borderline or antisocial personalities.

Subjects were divided into two groups according to their level of functioning: the highest-functioning group ($n = 5$) had a mean GAF score of 71 and included three subjects who did not meet any diagnosis and two with avoidant personalities. The remaining subjects ($n = 14$) had a mean GAF score of 40. Family stability was a strong predictor of outcome, with six families rated as "stable." All five of the subjects in the higher-functioning tier emanated from those families. Only these five attended school or worked regularly. Seventeen of the 19 subjects were adults at follow-up, but none were living independently or self-supportive. Crime, prostitution, homelessness, complete dependence on public services, and paucity or absence of friends or stable relationships were all noted in this sample. The authors concluded that the criteria used to diagnose borderline children reliably identified subjects at substantial risk for developing a range of personality disorders and a poor outcome. However, they also argued that the term *childhood borderline syndrome* is a misnomer,

but does represent an antecedent condition for the development of an array of personality disorders in adulthood.

Despite the elegant prospective design and the quantitative data analysis, subjects were included in this cohort based on Bemporad and colleagues' as yet unvalidated criteria for the borderline syndrome. Therefore, the heterogeneous outcome may have been a reflection of the diverse population of patients at inconclusion.

Goldman et al. (1992, 1993) modified the *DSM-III-R* criteria for borderline personality disorder to arrive at the diagnosis in 44 children. Compared with 100 nonborderline psychiatric controls, and similar to the adult borderline population, these children had significantly higher rates of early-onset physical abuse and "combined physical/sexual abuse" and of family psychopathology, suggesting both an environmental and a genetic etiology.

These findings suggested simple and clear differences between borderline and nonborderline groups, but it is questionable whether one can simply use modified criteria of the adult "borderline condition" to diagnose this syndrome in children.

Towbin et al. (1993), in support of inclusion of these children under the purview of the PDDs, modified the criteria suggested by Cohen et al. (1986) to arrive at new diagnostic criteria which they labeled "multiple complex developmental disorder" (MCDD) (Table 1). Towbin's group maintained that many difficulties were inherent in the use of the term *borderline*. They maintained that the impaired object relations which borderline youth and adults both manifest, and their associated stresses, were nevertheless nonspecific parameters which could not distinguish between this condition and other childhood disorders, (e.g., autism, chronic posttraumatic stress disorder, and reactive attachment disorder). They indicated that follow-up studies did not support continuity between the borderline syndrome of children and borderline personality disorder in adults. The same label applied to both adults and youth implied continuity of the disorder over time, and phenomenological similarity, and thus erroneously suggested a similar outcome. By contrast, the early onset of this disorder and the related social deficits suggest instead a PDD. The authors stated that this early onset of deficits in multiple domains of functioning would have a pervasive and deleterious impact on development. Given these considerations, the *DSM-III-R* diagnosis for these children would be PDD not otherwise specified, which is unacceptable as it mixes these children with others whose condition more closely resembles autis-

TABLE 1
Suggested Diagnostic Criteria for
Multiple Complex Developmental Disorder

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- A. Regulation of affective state and anxiety is impaired beyond that seen in children of comparable mental age manifested by two of the following:
 1. Intense generalized anxiety, diffuse tension, or irritability.
 2. Unusual fears and phobias that are peculiar in content or in intensity.
 3. Recurrent panic episodes, terror, or flooding with anxiety.
 4. Episodes lasting from minutes to days of behavioral disorganization or regression with the emergence of markedly immature, primitive, and/or self-injurious behaviors.
 5. Significant and wide emotional variability with or without environmental precipitants.
 6. High frequency of idiosyncratic anxiety reactions such as sustained periods of uncontrollable giggling, giddiness, laughter, or "silly" affect that is inappropriate in the context of the situation.
 - B. Consistent impairments in social behavior and sensitivity (compared with children of similar mental age) manifested by one of the following:
 1. Social disinterest, detachment, avoidance, or withdrawal in the face of evident competence (at times) of social engagement, particularly with adults. More often attachments may appear friendly and cooperative but very superficial, based primarily on receiving material needs.
 2. Inability to initiate or maintain peer relationships.
 3. Disturbed attachments displaying high degrees of ambivalence to adults, particularly to parents/caregivers, as manifested by clinging, overly controlling, needy behavior, and/or aggressive, oppositional behavior. Splitting affects with shifting love-hate behavior toward parents, teachers, or therapists are common.
 4. Profound limitations in the capacity of empathy or to read or understand others' affects accurately.
 - C. Impaired cognitive processing (thinking disorder) manifested by one of the following:
 1. Thought problems that are well out of proportion with mental age, including irrationality, sudden intrusions on normal thought process, magical thinking, neologisms or nonsense words repeated over and over, desultory thinking, blatantly illogical bizarre ideas.
 2. Confusion between reality and fantasy life.
 3. Perplexity and easy confusability (trouble with understanding ongoing social processes and keeping one's thoughts "straight").
 4. Delusions, including fantasies of personal omnipotence, paranoid preoccupations, overengagement with fantasy figures, grandiose fantasies of special powers, and referential ideation.
 - D. No diagnosis of autism.
 - E. Duration of symptoms longer than 6 months.
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Note: Reprinted from Towbin et al. (1993).

tic disorder. The authors also argued that "personality" is by definition a dynamic and fluid state in children, perhaps even more so "in highly disordered children," therefore questioning the validity of the term *personality disorder* for this age group. They also stated that personality

impairment does not adequately encompass the severity of the disorder as reflected in the “borderline syndrome” with respect to the areas of thinking, affect, and relatedness. This latter may reflect Towbin and colleagues’ underestimation of the potential degree of severity and impairment associated with personality disorders.

On the basis of these arguments, however, the authors adopted the direction taken by Cohen et al. (1986); they introduced a new category under the rubric of the PDDs, namely MCDD. MCDD was conceptualized as a disorder beginning before age 5 years and is characterized by functional deficits leading to a consistent, enduring pattern of fluctuations in affect regulation, relatedness, and thought. These fluctuations are outside the range of what is to be expected from children at the same developmental level and are in contrast with the “stability” of dysfunction in autistic children. It is unclear how the authors reconciled such an enduring pattern of fluctuation in functioning with the concept of a PDD. The authors overlooked the age-of-onset criterion for an MCDD diagnosis, despite its importance to the inclusion of MCDD among the PDDs.

In a first step toward validating their criteria, Towbin et al. (1993) compared 26 latency-age subjects (mean age 9 years) who met the criteria for MCDD with two groups (30 subjects each) of non-MCDD dysfunctional children, one meeting *DSM-III-R* criteria for dysthymia alone and the other meeting *DSM-III-R* criteria for conduct disorder alone. All groups were matched for demographic variables, IQ, and socioeconomic status. A variety of instruments were used, and children with MCDD were readily distinguished from the two comparison groups. They had earlier onset of symptoms, poorer social and overall adjustment, longer hospitalizations, poorer outcomes upon discharge from hospital, and poorer peer relationships. These children had more internalizing and externalizing symptoms and more severe symptoms on the Child Behavior Checklist (CBCL) (Achenbach and Edelbrock, 1983). Mothers of MCDD patients were also shown to have significantly more psychopathology than comparison group mothers.

Although these quantitative data offer some external validation of these criteria, it was yet unclear whether these criteria adequately differentiated the MCDD population from other PDD populations and whether the symptoms described actually cluster to form this disorder.

Van der Gaag et al. (1995) conducted a cluster analysis of four groups of children: 105 children who met the criteria suggested by Towbin et al. (1993) for MCDD (as a subtype of PDD) (Table 1), 32 children with

autism (as the prototypical PDD), 51 children with “disruptive behavioral disorders” (either attention-deficit/hyperactivity disorder [ADHD], conduct disorder, or both), and 56 children with “emotional disorders” (i.e., anxiety and affective disorders). The authors found that MCDD was readily discriminated from autism, and both were discriminated from non-PDD diagnoses. Furthermore, they found that the factors most characteristic of MCDD were thought disorder and primitive anxiety (see items 1 and 3, Table 1) and that the symptom of “fluctuations in the level of functioning” of the MCDD group had the strongest differentiating value. Forty-four percent of the variance was explained by family adversity, postnatal problems, family genetic loading, developmental delay, and obstetric complications. Family adversity differentiated only the autistic group, as they had the lowest scores—the other three groups were similar to each other. Both the autistic and the MCDD groups were characterized as “developmentally delayed,” but no definition of what that constitutes was offered in the article. Whereas 95% of autistic children had onset before 2.5 years of age, only 45% of the MCDD group had onset before that age and the remainder before 6 years.

These findings suggest that the autistic and MCDD groups differed qualitatively rather than quantitatively. However, the authors’ internal and external validation of MCDD supported the addition of this construct as a *subcategory* of PDDs in the upcoming *DSM-V*, provided that these conditions are viewed as components of a “spectrum” of related disorders rather than lying on a “continuum.” An additional strength in this effort was the provision of demographic and psychosocial characteristics of the MCDD population and how they compare with other psychiatric populations. The study was weakened by the overinclusion of diagnoses in the categories of “emotional disorders” and “disruptive disorders,” reducing the internal consistency of these comparison groups and thus the validity of the conclusions.

In an effort to determine the risk factors for the development of “borderline personality disorder” in childhood, Guzder et al. (1996) published chart review data on 41 borderline children and 57 matched nonborderline psychiatric controls. The subjects were selected on the basis of their scores on a revised version of the C-DIB (Greenman et al., 1986). The borderline group had a lower level of functioning than the comparison group, according to the Children’s Global Assessment Scale (Shaffer et al., 1983). Although they found no differences

in learning disabilities, borderline children were characterized by an increased incidence of school changes, sexual abuse and severe neglect (odds ratios of 5.5 and 3.6, respectively), referrals to youth protection services and foster placements, and parental substance abuse and criminality. Cumulative abuse seemed to predict the disorder and was correlated with cumulative parental dysfunction. Although clinically it was males who most commonly received this diagnosis, females scored higher on the C-DIB-R. The authors concluded that these and previous reports support the contention that both the childhood and the adult disorders share the same risk factors, despite the lack of evidence in the literature demonstrating a continuity between the two.

It is important to note that it is not clear to what extent these variables contribute to the variance, for which reason conclusions cannot be drawn with respect to causality.

Guzder et al. (1999) again reported on the same 41 borderline children (with 55% comorbidity with conduct disorder) and their parents and cross-sectionally compared them with 53 matched nonborderline psychiatric controls and their parents. In addition to the findings of the previous study, borderline children were more likely than their nonborderline counterparts to be associated with physical abuse and to have witnessed violence. In this study, the authors demonstrated that the borderline children were more psychiatrically impaired than those with conduct disorder; they suggested that those with borderline pathology were characterized by a unique psychosocial profile and that this in turn supported the validity of the borderline construct in children. The authors proposed a diathesis-stress model as a possible etiology for the disorder, wherein underlying traits (e.g., impulsivity and affective instability) interact with environmental stressors to produce the syndrome. They concluded that conduct disorder is distinct from borderline pathology and that this distinction could lead to more focused and effective interventions for each. Paris et al. (1999) published a comparison of the neuropsychological profiles of the same samples of borderline children and matched nonborderline psychiatric controls. The group demonstrated that the two samples differed significantly on their scores on the Wisconsin Card Sorting Test (WCST) (Heaton, 1981) and the Continuous Performance Test (CPT) (Conners, 1993). Borderline children performed more poorly on every subscale of the WCST, and the difference in performance was independent of comorbidity with conduct disorder on most subscales. Thus borderline chil-

dren had more difficulty completing tasks, made more errors, failed to learn from these errors, and were unable to achieve an overall conceptualization of the tasks set by the test. Similarly, borderline children performed more poorly on the CPT, and results were independent of comorbid conduct disorder or ADHD. No significant differences were found between the samples in visual-motor coordination. The authors concluded that difficulties in planning and lack of flexibility are cognitive symptoms of borderline children and constitute supportive evidence for the presence of an underlying biological diathesis.

Lincoln et al. (1998) compared three groups of children: 11 children with comorbid ADHD and borderline/MCDD, 11 with "pure" ADHD alone, and 18 nonpsychiatric controls. To be included in the comorbid group, children had to have received a diagnosis of ADHD and had to meet *both* the Vela et al. (1983) and Towbin et al. criteria (1993) (Table 1) for borderline and MCDD, respectively. The borderline/MCDD group scored significantly less than the other two groups with respect to Verbal, Performance, and Full Scale IQ, and specifically the Verbal Comprehension subscale. The borderline/MCDD group scored higher on most subscales of the CBCL than the other two groups. In addition, the borderline/MCDD group were impaired in their ability to discriminate and replicate auditory information compared with the other two groups (which did not differ). The borderline/MCDD group were also found to be impaired in the areas of executive control, motor planning, and reaction speed. Both the ADHD and the borderline/MCDD groups were equally impaired on measures of cognitive flexibility and the ability to modify responses based on feedback. The patterns of evoked response potentials in the borderline/MCDD group were qualitatively different from those of the comparison groups and from those found in children with autism and children with language disorders (normative data exist for both). The authors concluded that the borderline/MCDD syndrome with comorbid ADHD was distinct from ADHD alone and distinct from both autistic disorder and developmental language disorder. They postulated that the borderline/MCDD group's impaired executive functions compromise their ability to respond adaptively to anxiety, and this is exacerbated by undeveloped language skills that compromise their ability to verbalize their conflicts. With impaired executive control, stress leads to less successful planning strategies and greater inclination to disinhibition and/or decompensation, a dynamic of particular relevance to this popula-

tion as they are so often exposed to environmental stresses (e.g., trauma and abuse).

This study is important in its demonstration of a unique neuropsychological and neurophysiological profile of the borderline/MCDD population, increasing the internal validity of this construct. However, the complexity of the inclusion criteria may not permit a broader understanding of the larger spectrum of borderline/MCDD population.

Multidimensionally impaired disorder (MDI) (Kumra et al., 1998) designated a pediatric population suffering from brief, recurrent, and stress-induced psychotic symptoms, occurring after 5 years of age, without meeting criteria for schizophrenia. Its atypicality made it suitable as a subgroup of psychotic disorders. Their premorbid history includes progressive cognitive decline, transient features of PDD, as well as impaired interpersonal skills, emotional lability, attention deficit, and linguistic impairment. The PDD-like symptoms described in these children are qualitatively different from autism and are quite similar to MCDD (Towbin et al., 1993; Van Der Gaag et al., 1995). Children with MDI were distinguishable neuropsychologically from patients with very-early-onset schizophrenia (onset by age 12) and those with ADHD, and they had a better prognosis; only 27% of them met criteria for schizoaffective disorder at 2-year follow-up. The study was limited, however, by the absence of blinding and contamination by pharmacological treatment. The MDI construct has not yet been validated or tested in comparisons with the MCDD criteria (Table 1).

DISCUSSION

The literature review thus far supports the existence of a group of children who exhibit disturbances in essentially every area of functioning with onset before age 6 and who seem to be a unique group when compared with other psychiatric populations. There is some evidence of the internal and external validity of a set of diagnostic criteria (Towbin et al., 1993; Van Der Gaag et al., 1995), a unique psychosocial profile (Guzder et al., 1996, 1999), and distinctive neurophysiological and neuropsychological profiles (Lincoln et al., 1998; Paris et al., 1999). We are thus no longer debating the existence of "the syndrome," but its nosology. The multitude of diagnoses used to characterize children with this syndrome should not diminish its validity as a unique entity. One of the nosological challenges is to identify a distinct population of patients

despite significant heterogeneity and substantial overlap their condition may appear to have with conditions that are frequently comorbid. Such appears to have been one of the dilemmas encountered in identifying the children discussed in this article, namely that their complex and sometimes heterogeneous clinical presentations appear to dovetail with many *DSM* disorders. However, this is still in keeping with the culture of the *DSM-IV* (American Psychiatric Association, 1994), which does not assume absolute homogeneity within diagnostic categories or absolute boundaries between disorders. These children may simply have several disparate, comorbid diagnoses. However, the concept of parsimony of hypothesis would oblige a search for a symptom cluster to differentiate a distinct group of these patients, permit diagnostic clarity, and facilitate research.

With the exception of the suggestion by Kumra et al. (1998) that may have categorized some of the children described as borderline/MCDD under the psychotic disorders, most of the literature considered in this article seems to lend equal support to the inclusion of this population of children either among the PDDs or among those with personality disorders. However, it is not clear that these diagnostic trends are desirable.

In an effort to elucidate the concepts of "personality disorder," Hill and Rutter (1994) stated that "the unifying notion is the idea that there are pervasive and persistent abnormalities of overall personality functioning that cause social impairment and/or subjective distress, but that are not due to episodic disorders of mental state, and that are not the result of qualitatively disordered thought processes" (p. 688). However, they note that *de facto* not all personality disorders meet those criteria, such that the current personality disorders may reflect disparate concepts that overlap with each other and/or other syndromes, thus complicating their validation and challenging the notion that such a unifying concept actually exists. They offer as an example the overlap of schizoid personality disorder, schizotypal personality disorder, and Asperger's syndrome.

Hill and Rutter suggested three major areas wherein a personality disorder should be validated, each of which is fraught with challenges: differentiation from episodic disorders, chronic disorders, and other personality disorders. On this basis, personality disorder and chronic disorders (e.g., autism, mental retardation, and childhood schizophrenia) cannot be differentiated as they are both part of a person's makeup.

It would appear from the reports summarized in this review that the borderline/MCDD syndrome does indeed satisfy the criteria enumerated by Hill and Rutter for a personality disorder. Specifically, borderline/MCDD syndrome can be differentiated from episodic disorders, from the chronic disorders within the PDD group and ADHD, and from conduct disorder.

We now address ourselves to two remaining impediments that must be resolved before including the borderline/MCDD syndrome among the personality disorders: (1) some of the characteristics of the borderline/MCDD syndrome resemble the PDDs, and (2) there is insufficient evidence for the continuity of the pediatric disorder with its adult counterpart.

With respect to the similarities between the borderline/MCDD syndrome and the PDDs, we refer to Myhr (1998), who listed the three core impairments which define the PDDs: (1) *impairment in socialization* that can range from seeking affection inappropriately, to problems with imitation and joint referencing, to total withdrawal; (2) *impairment in communication* that can range from high verbal ability associated with abnormal use of language, to semantic-pragmatic difficulties, to mutism; and (3) *impairment in behavior*, interests, and activities that can range from almost normal pretend play but unusual preoccupation with narrow interests to engaging in repetitive, nonfunctional activities. According to Myhr, data suggest that children suffering from this triad of impairments could be classified along a PDD "continuum." The different PDDs have *quantitative* differences among them, allowing a dimensional or continuum concept to encompass all the PDDs. Although the children referred to in this article as suffering from borderline/MCDD also have impairments in the same three areas that define PDD, the evidence was that these impairments are *qualitatively* different (i.e., neurophysiologically and neuropsychologically) and thus differentiate them from the PDD category. We can use Myhr's triad to highlight the differences between the PDDs and borderline/MCDD syndrome (as per Towbin and colleagues' [1993] criteria). For example, in the realm of socialization impairments, the PDDs are characterized by a persistent and stable degree of detachment from the object. By contrast, in the borderline/MCDD syndrome, any given individual's degree of attachment is varied and does not show stability. Whereas both syndromes are characterized by communication impairments, the borderline/MCDD syndrome does not manifest the same consistent profile of deficits in

abstraction, symbol formation, and, therefore, language and communication. With respect to behavioral impairments, the PDDs demonstrate stereotyped behaviors with compulsive attention to certain pursuits and resist changes in their behavior induced by the environment. By contrast, the borderline/MCDD syndrome does not demonstrate stereotyped behaviors, although they may disorganize in response to anxiety and their behavior can be characterized as "oppositional" in intent.

We will now address ourselves to the second impediment to the inclusion of borderline/MCDD syndrome among the personality disorders; that is, there is a lack of evidence demonstrating continuity between the borderline/MCDD syndrome and borderline personality disorder in adults. The disparate criteria describing the syndrome complicate our efforts to track it, although it is possible that the syndrome evolves into a variety of personality disorders. A similar dilemma was encountered with the adult outcome of the pediatric conduct disorder (Zoccolillo, 1992), which may not be simply restricted to the analogous adult antisocial personality disorder. To reconcile this dilemma, these two syndromes were labeled differently (Hill and Rutter, 1994): conduct disorder was grouped under the category of disruptive behavior disorders, while remaining a criterion for the diagnosis of adult antisocial personality disorder. This differentiation has had the advantage of allowing for phenomenological and prognostic disparities between these disorders and has enriched research into and our understanding of them.

The discussion thus far leaves several questions unanswered. For example, will children labeled with a personality disorder be approached fatalistically as is the case with some adults who have a similar diagnosis? Many clinicians treat patients with personality disorders because of their perceived ability to change during therapy. Yet others avoid this patient population for fear of treatment failure. Clarification of the diagnosis may minimize these unfortunate treatment ambiguities. Furthermore, will the personality disorder label bias the direction of research that might otherwise enable a better understanding of these children? Among investigators in the burgeoning domain of personality disorders, some focus on the psychological and social components of its etiology, whereas investigators in the PDD domain may emphasize its biological underpinnings. Both of these areas of inquiry have potential to enrich our knowledge of the population described in this article. Finally, will treatment, research, and/or resource allocation be altered in the event that these children are

perceived as suffering from PDD and thus potentially permanently disabled? Unfortunately, the label of PDD may also imply to some, but not all, clinicians and researchers an emphasis on the adaptation of the patient and family to the disorder, rather than an understanding of the environmental precipitants and/or the search for cure.

As a partial antidote to these concerns, we are searching for a nomenclature that possesses operational criteria that allow for consensus among investigators and is free of biases associated with the labels of personality disorder or PDD. This nomenclature would apply to the entity described in this article, which is commonly mislabeled as borderline or MCDD. Future research might eventually justify inclusion of such a newly identified and autonomous entity among one of the current categories of mental illness.

The term we are in search of must be neutral insofar as it would not imply preexisting notions of etiology, classification, or outcome. It would thus promote unbiased research into these areas. Furthermore, in pursuit of a label for this entity, we must remain in keeping with the tradition of *DSM*. We would accordingly approach this exercise from a purely phenomenological perspective, while carefully considering each major area of dysfunction. At the risk of the addition of yet another term to the existing glossary used to describe this population, we suggest a term that makes reference to each of the domains of dysfunction that affects these children, namely the *emotional* domain, the domain of *social relations*, and the *cognitive/thinking* domain. One facile and obvious example of such a new nomenclature to describe this population would be *emoto-cognitive dys-social disorder*. This is in keeping with conditions such as ADHD, schizoaffective disorder, and obsessive-compulsive disorder. This neutral approach to nosology is an essential step toward the eventual development of a genuine understanding of the disorder currently known as borderline syndrome of childhood or multiple complex developmental disorder. Once a neutral nosology is established, then the exciting task of identifying its incidence, prevalence, and long-term outcome can begin, and treatment options can be explored in order to promote early and effective interventions with a hope of optimizing the clinical outcome of this population.

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