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Pervasive Developmental Disorders, Psychiatric Comorbidities, and the Law

Mark T. Palermo

Abstract: *Scattered reports propose that pervasive developmental disorders (PDDs) are risk factors for criminal behavior, yet the association between PDD and delinquent behavior is untrue for the majority of patients. However, individuals with PDDs may be at risk for legal trouble in the presence of comorbid psychopathology, and not solely on the basis of their developmental disability. This article analyzes theoretically the relationship between complex developmental disorders and delinquency with the hypothesis that the delinquent behaviors reported in it resulted from comorbid psychopathology and not as a direct consequence of a developmental disorder. A small series of patients diagnosed with a PDD and comorbid psychiatric illnesses whose admission to the hospital was precipitated by delinquent behavior is presented.*

Keywords: *pervasive developmental disorders; autism; Asperger's syndrome*

The pervasive developmental disorders (PDDs) (American Psychiatric Association, 1994) are a group of neuropsychiatric syndromes with onset early in life characterized by deficits in language, socialization skills, and restricted behavior patterns. These include diagnostic categories that differ greatly, with respect to clinical presentation and long-term outcome, such as autistic disorder, Asperger's disorder, Rett's disorder, childhood disintegrative disorder, and PDD not otherwise specified.

Scattered anecdotal reports (Baron-Cohen, 1988; Chen et al., 2003; Everall & Lecouter, 1990; Hall & Bernal, 1995; Mawson, Grounds, & Tantam, 1985) and one prevalence study (Scragg & Shah, 1994) propose that PDDs are risk factors for criminal behavior. However, this association is untrue for the majority of patients. However, the introduction of the concept of the autism spectrum, wherein the disorders are seen as varying along a continuum of severity (Wing, 1997), although corresponding to a clinical reality, broadens the inclusion criteria in most studies of autism, decreasing the specificity of a given diagnosis and consequently of any association with a given diagnostic entity. In fact, prevalence estimates vary considerably along the spectrum. Recent epidemiological studies describe rates of autistic disorder as high as 6.0 cases per 1,000 children (Bertrand et al., 2001; Kadesjo, Gillberg, & Hagberg, 1999) When considering individuals across the entire spectrum, the prevalence rates increase further (Bertrand et al.,

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2001). Boys have been reported to be affected more commonly than girls, with a 3:1 ratio (Lotter, 1974). A recent study, however, reported much higher ratios of 15:1, and this is felt to be possibly secondary to overlap with Asperger's syndrome (AS) in the sample studied (Bertrand et al., 2001). The ratio may vary with the IQ, and it may range from 2:1 in individuals who are severely compromised to 4:1 in less impaired individuals (Bryson, 1997).

Clinically, along with problems in the social-emotional domain, patients affected by a PDD present with dysfunctional communicative skills, with impairment of both expression and decoding of language, including its affective features, particularly with respect to the facial emotional expression associated with communication and with the interpretation of the facial mimicry of others. (Tantam, Monaghan, Nicholson, & Stirling, 1989).

When language is relatively well developed, as in the higher functioning cases, along with oddities of prosody there may be peculiarities in gestural kinesics—the body motions used to emphasize discourse through hand or head movements—during communication (Gillberg, 1998; Rapin, 1997). There usually is historical or objective evidence of social isolation and a limited repertoire of activities enjoyed, or perhaps particular isolated skills. Likewise, a certain degree of inflexibility and difficulty with change or problems in shifting behavior sets may be observed.

Particularly in the older, higher functioning patient, who may be diagnosed later in life, it is important to gather a thorough developmental history, or some of the characteristic features, which frequently change in quality over time, may be overlooked.

The specific impairments probably involve both processing of input and output of information, although a single underlying neuroanatomical substrate has yet to be conclusively defined. (Kemper & Bauman, 1998) and, given the multiplicity of problems these individuals encounter (Dunn, 1994), different brain areas are implicated. The emotional processing deficits suggest malfunction of right hemispheric neural circuits thought to be important in the decoding of both subjective and objective perception of certain aspects of emotional experience (Ross, 1993). The inflexibility and rigidity, on the other hand, represent probably the final outcome of dysfunctional anterior brain structures involved in the capacity to shift between behavioral sets (Denckla & Reiss, 1997).

To analyze, from a theoretical perspective, the relationship between complex developmental disorders and delinquency, three adult patients with a PDD whose admission to hospital was precipitated by criminal behavior are presented below. Although acknowledging the small number of cases, an attempt is made to examine the interaction between psychopathology, the typical signs and symptoms of PDD, and the potential for legal involvement. It is hypothesized that the delinquent behaviors described resulted from comorbid psychopathology and not as a direct consequence of a developmental disorder.

CASE SUMMARIES

Patient 1. A 19-year-old man, with a prehospitalization diagnosis of PDD not otherwise specified (NOS), was admitted involuntarily to hospital after he threatened to kill a police officer during the process of his arrest for alleged possession of illicit substances.

His family history was notable for a biological father with "language problems." There was no history of obstetrical complications. There was no apparent history of motor or language delay. He was adopted at 13 months following normal developmental milestones. He had a long history of motor clumsiness, and in school he required special tutoring on the basis of "emotional difficulties." He had a reported normal IQ and graduated from high school. There was no history of head trauma.

His legal problems began at age 16 when he was arrested for attempting to enter someone's automobile, even though he could not yet drive a car. He was later arrested three times but never incarcerated, always for peering into people's windows at night and/or for trespassing into other people's property.

His mental status examination revealed a silly affect and a severe degree of interpersonal intrusiveness, particularly with regard to personal space. In spite of this, he made little eye contact and was engageable in talk only after repeated requests. He repeated the same questions over and over. He had a marked increase in psychomotor activity, both goal directed and purposeless, which appeared to be a chronic problem, although never addressed clinically. The neurological examination revealed signs suggestive of executive dysfunction. While in hospital, a comorbid cross-sectional *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM-IV*) (American Psychiatric Association, 1994) diagnosis of hyperactivity disorder was made. The patient was started on the appropriate medication regimen, with significant improvement in his level of psychomotor drivenness. It was felt that the overactivity state, in association with his difficulty with interpreting social cues, contributed to the previous history of intrusiveness and trespassing.

Patient 2. A 33-year-old single man was admitted voluntarily to hospital after threatening to burn down his grandmother's home after his extended family forced him and his mother out of the house because of family disputes over property issues.

His family history revealed a maternal major depressive disorder. He was the product of a normal delivery. He had no history of language delay but was a late walker and he toe walked all of his life. He was described by his mother as temperamentally "stubborn," rigid, and extremely anxious. He was diagnosed in childhood with a learning disability, yet information regarding the same was never available for perusal. By standard testing he achieved an IQ in the normal range. He was able to attend regular classes and graduated from high school.

He spent most of his time at the computer perusing Internet sites and had a particular interest in chemical weapons and “fire bombs.”

His mental status examination revealed minimal spontaneous speech and a monotone and whiny prosody. His affect was anxious and his mood depressed. He had homicidal impulses toward his grandmother.

Cross-sectional *DSM-IV* diagnoses of Asperger’s disorder and depressive disorder NOS were made. The latter was judged to contribute to his hostility toward his family, along with the anxiety related to the uncertainties regarding his living arrangements in the context of family discord.

Patient 3. A 30-year-old man with a previous diagnosis of AS and bipolar affective illness was admitted to hospital after he exposed himself and touched a prepubescent boy at a playground near his home. He had become hypersexual in the context of a manic exacerbation of his mood disorder, with frequent masturbatory activity and much time spent thinking about sexual themes. The patient had never demonstrated gender confusion outside of episodes of mood disorder.

The extended family history revealed affective illness on the paternal side of the family. His prenatal history revealed problems with maternal bleeding during the first trimester and a history of prolonged labor. Developmentally, he was a “fussy” child and had vegetative regulation problems with a disturbed sleep-wake cycle until age 5. He required tutoring throughout his school years and graduated late from high school. He had no close friends and dreamed of being famous. He was described by his family as a temperamentally hyperexcitable person who had always had a low tolerance for frustration.

The mental status examination revealed a cooperative man who showed odd, effeminate mannerisms and a severe degree of interpersonal intrusiveness. He frequently asked the examiner personal questions regarding his (the examiner’s) sexual orientation and personal life. His speech was pressured and dysprosodic, with frequent changes in tone and speed. His affect and range of emotional expression were restricted. Following successful treatment of his mood disorder, the hypersexuality disappeared, yet the interpersonal intrusiveness and dysprosodic speech persisted.

DISCUSSION

Neuroscience developments have paralleled and stimulated a renewed interest in the neurobiological correlates of violence and criminal behavior (Elliot, 1992; Restak, 1992). A “neo-Lombrosian” approach using the available technology rightly tries to correlate behavior with brain, as this is the fundamental axiom of behavioral neurology. However, although these correlates are obvious, as behavior arises from the central nervous system, there is inconclusive evidence linking pervasive developmental disorders to violent or criminal behavior.

In this small series of patients, it is the author's hypothesis that concomitant psychopathology was the driving force for the offending behaviors. The presence of a disinhibiting affective illness, or driven motor activity, superimposed on the inability to interpret social and emotional cues, was felt to contribute significantly to the patients' legal troubles. These patients shared certain characteristics. They all demonstrated difficulties in appreciating social cues, had different degrees of interpersonal inappropriateness, and showed mannerisms and prosodic oddities. All three had abnormal neurologic findings and the presence of a major psychiatric illness in the context of a longstanding pervasive developmental problem. All met the diagnostic criteria for Asperger's disorder.

Although single case reports and this small series indeed describe patients with PDD who engaged in criminal behavior, the association between PDD and delinquent behavior is untrue for the majority of patients. Lack of empathy is blamed for a supposed proneness to violence in this patient population (Tantam, 1991), yet a survey of the literature failed to demonstrate a true link between criminality and pervasive developmental disorders or a correlation between AS and violence. The author was unable to verify a significant association between cases of AS reported in the literature between the years 1944 and 1991 and violent behaviors. In fact, in a report by Ghazziudin, Tsai, and Ghazziudin (1991), only 6% of such patients reported in the literature had been described as violent, a figure comparable to that of the base rate of violent individuals estimated as being present in the general U.S. population. Their paper, however, did not take into account individuals with a PDD in forensic hospitals. Scragg and Shah (1994), in a prevalence study of AS in a secure hospital in the United Kingdom, through a three-step screening procedure that included direct interviews of patients, found a prevalence of the diagnosis of AS in the institution of 1.5%, clearly greater than that reported in a general population study (Gillberg, 1998).

Although patients in forensic settings attract great notoriety, they are not representative. Most studies attempting to link well-known neurologic or neuropsychiatric entities to an increase in the propensity to commit a felony have suffered from the methodological problem inherent in the choice of the forensic population (see, e.g., Lewis, Pincus, Shanok et al., 1982; Wong, Lumsden, Fenton, & Fenwick, 1994). In addition, forensic studies may suffer from selection bias. An observational approach may equate syllogistically cross-sectional presence of a disease or of a trait with causation of a behavior. Cases are also selected not on the basis of their diagnosis but because of the mere fact that they are institutionalized.

Nevertheless, violent acts are indeed reported more frequently for patients with serious mental illness compared to the normal population (e.g., Slovenko, 1995), and paranoid traits and substance abuse increase the risk for serious violence. This is understandable given that both may contribute to interpersonal aggression, and that illicit drug use, depending on the abused substance, may in and of itself cause suspiciousness and heightened adrenergic states. However, studies on the neurology of violence and criminality often lump together disease categories that are controversial. Episodic dyscontrol and psychopathy,

classified in *DSM-IV* under the rubric of impulse control disorders and antisocial personality disorder, are frequently linked in the literature to neurologic conditions such as epilepsy, the latter characterized by behavior paroxysms (Wong et al., 1994). Both of the two former states, dyscontrol and psychopathy, indeed share a potential propensity toward violence, yet no clear association between goal-directed violence and epilepsy can be found as of yet (Treiman, 1986, 1991). Also, if criminal behavior is relatively easy to describe as it is defined in relation to specific cultural and social norms, the concept of violence requires a multidisciplinary definition, borrowing from ethology, psychology, and anthropology. Nonetheless, the two are often used almost interchangeably, leading to further misunderstanding.

Likewise, although mild electroencephalographic (EEG), neuropsychological, and neuroimaging abnormalities are reported to be more frequent in the forensic population (Wong et al., 1994), many of the studies quoted in the literature antedate more contemporary views of what are now considered to be normal EEG variants (Westmoreland, 1990), as well as the use of more sophisticated surface EEG technology, and yet they persist as references in the neuropsychiatric literature. In addition, the higher incidence of head injury in individuals engaging in antisocial behavior can, at least in part, explain the often subtle or nonspecific cross-sectional abnormalities noted on electrophysiologic and neuropsychologic testing, therefore leading to doubt an actual cause-effect relationship between test results and delinquent behavior (Gronwall, 1989; Levin, Ewing-Cobbs, & Fletcher, 1989; Lewis et al., 1982; Wong et al., 1994).

Also, the reported increased prevalence of individuals with lower than average IQ test scores in populations of offenders may not represent an actual increase in the tendency to offend of the less intellectually gifted, as one could easily derive from the literature (Hodgins, 1992). In fact, it may rather be the consequence of executive dysfunction, associated with cognitive disabilities. Executive functions are higher cognitive skills that allow humans to plan and organize behavior in response to environmental stimuli as well as to personal goals and will. They include the ability to shift attention from less important stimuli to more important ones as well as the capacity to modify an action or to inhibit or interrupt a behavior sequence because of an order or a foreseen consequence. They are also essential for the synthesis of details into a comprehensive and understandable whole (Devinsky, 1992). Executive function would hence be essential for planning and avoiding consequences, the lack of which would explain the increased vulnerability to being apprehended and incarcerated.

Most incarcerated offenders come from a less advantaged socioeconomic background (Sampson & Laub, 1994), where lack of proper nutrition and adequate academic stimulation and less than adequate prenatal care may have a significant effect on the development of the central nervous system, as well as on later academic achievement and, consequently, on formal test-taking capacity with the development of a "functional" learning disability. In addition, the multifaceted deficits encountered in patients with a PDD may clearly increase

their vulnerability to overreact to frustrating situations or sudden environmental stimulation. Their interpersonal and internal rigidity renders them vulnerable to frustration. This may conceivably contribute to the development of aggressive or violent behaviors, in the appropriate context.

An impaired capacity to process nonverbal aspects of language and to interpret the emotional state of others further increases the risk of failing to appreciate the consequences of behaviors. An underdevelopment of a theory of mind (Premack & Woodruff, 1978), narrowly defined as the capacity to appreciate mental states, subjective and of others, and to understand the connection between behaviors and thought (Wellman & Woolley, 1990) presumably underlies the capacity for empathy. A lack of empathy associated with difficulties in interpreting social cues further adds to the problems in anticipating not only the reactions of other people, but also others' expectations (Leslie, 1987; Tantam, 1991). In addition, prosodic oddities, mannerisms, and peculiar interpersonal behaviors make patients likely targets of misunderstanding, as well as vulnerable to less-than-scrupulous people.

Biological, or better, neurological determinism, if not reductionism, may have unexpected consequences. The medicalization of a behavior may, in fact, shed light on vulnerabilities that may help explain the same behavior, without, however, justifying it. Paradoxically, however, at the same time it may deresponsibilize both the individual and society as it questions sociogenetic explanations of criminal and offending behaviors, which, albeit superimposed on a fertile biological substrate, are of primary importance. From a very practical point of view, this, in turn, can contribute to radical changes in funding for programs aimed at prevention of delinquency in areas of society found to be at particular risk and in the treatment of offenders.

In conclusion, associations between neurodevelopmental syndromes and complex psychosocial behaviors are difficult to substantiate, and although there is clearly a need to clarify this relationship (Siponmaa, Kristiansson, Jonson, Nyden, & Gillberg, 2001), current limited evidence may trigger an unintended cycle that renders a neglected patient population vulnerable to further misunderstanding.

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