

Neurodevelopmental Disorders, Criminality, and Criminal Responsibility

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Although individuals with neurodevelopmental disorders (ND), such as intellectual disability (ID) and autism, are overrepresented in the criminal justice system, most psychiatry training is limited regarding NDs, and forensic psychiatry training tends to focus on psychotic and mood disorders. This article explores the complex interactions between NDs and criminality, including direct etiological explanations and potential mediating variables (e.g., trauma), to address common training gaps. We compare and contrast current laws relevant to assessing NDs in criminal responsibility evaluations. Not guilty by reason of insanity (NGRI) criteria vary by jurisdiction, with some specifying ID as one possible insanity defense prerequisite while most jurisdictions are nonspecific. NDs in the absence of psychosis or mania often involve impaired cognition (e.g., comprehension, reasoning, social cognition) and behavioral dysregulation. This article provides potential scenarios by which those with NDs might be competent to stand trial but qualify for one or more NGRI prongs. Suggestions for assessment methods (including for malingering) are addressed for this unique population.

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This article reviews neurodevelopmental disorders (NDs), such as intellectual disabilities (ID) and

autism spectrum disorder (ASD), as they relate to criminality. This includes discussing current research and law to summarize knowledge on individuals with NDs in the criminal justice system, etiological explanations, a framework for evaluating individuals with NDs in forensic psychiatry settings, and formulating how a person with ND could meet not guilty by reason of insanity (NGRI) criteria considering variances across jurisdictions. Because specific training in NDs is limited both in general psychiatry residencies and forensic psychiatry fellowships, this topic represents a common practice gap among forensic examiners.¹

Although some literature, case law, and statutory law use other terms (e.g., developmental disability, mental retardation, cognitive disability, intellectual developmental disorder), for the purposes of this article, the authors will consistently use ND and ID to be aligned with DSM-5 nomenclature² and for

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simplicity of presentation. According to DSM-5, NDs are a classification of diagnoses that begin early in life and affect cognitive or physical functioning. Among these is ID, which DSM-5 defines as a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains. For a general overview of criminal responsibility (CR) evaluations and the long history of excusing intellectually incapable individuals from criminal culpability, the authors recommend reviewing the American Academy of Psychiatry and the Law practice guideline for forensic psychiatric evaluation of defendants raising the insanity defense.³ How the law currently regards NDs and insanity is addressed below.

Links between NDs and Crime

Like most of the general population and most people with mental disorders,⁴ most individuals with NDs will not commit violent or criminal acts. Nevertheless, men with ID are five times more likely to commit violent offenses and women with ID are 25 times more likely than their same-sex counterparts without ID.⁵ ID is overrepresented among prison populations,⁶ ND among sex offenders,⁷ and ASD among mass murderers.⁸ The two most serious felonies traditionally associated with ID offenders are sexual offending and arson.⁹ Regarding sexual offenses, specifically, pedophilia is linked with many factors associated with NDs (e.g., low intelligence quotient [IQ], intellectual immaturity, lack of social knowledge), and sex offenders with ID have higher phallometric responses to younger children than other sex offenders.¹⁰ A literature review found ID to be neither over- nor under-represented among sex offenders, though it was noted that more quantitative research was needed.¹¹ It is possible that individuals with ID relate well and connect to children who match the developmental stage in which the person with ID functions and communicates. Possible explanations for increased criminal behaviors in general include mood and behavioral dysregulation (particularly in reaction to social or sexual rejection), misinterpretation of rules, empathy deficits, suggestibility and gullibility, and lack of concern or awareness of possible outcomes.¹² Impulsivity is also a characteristic in many syndromal etiologies of NDs, including Fragile X Syndrome and fetal alcohol spectrum disorders.^{13,14} Often, criminal behaviors occur

in the absence of or during changes in appropriate support and supervision.^{10,12}

Though reasons for higher violence among people with ND has not been fully elucidated with research, many hypothesize that there are co-variables that are independently associated with both violence and NDs, such as: trauma, low education, unemployment, and housing instability.^{15,16} Despite numerous legal protections (e.g., the *Olmstead* case;¹⁷ federal legislation related to education, access and abuse; government-supported entitlements and workshops; mandated reporting laws), individuals with NDs are vulnerable to abuse, neglect, discrimination, and poverty.¹⁶

Trauma is worth consideration for being at least partially, if not largely, explanatory of higher violence rates. Individuals with NDs are especially vulnerable to trauma. Likely because reliable and valid instruments for assessing posttraumatic stress disorder (PTSD) in the ID population are lacking, rates reported in the literature vary widely from 2.5 to 60 percent, so clearly much research is needed in this area.¹⁸ One of the better-designed studies suggests that 16 percent of individuals with ID have PTSD,¹⁹ about twice that of the lifetime prevalence among the general population. Differences in comparison to the general population may include lack of self-report, variation in the expression of symptoms, and caregivers' failed observation or misinterpretation of distressing symptoms.

Adding to the complexity of accurate diagnosis, the most common presentations for PTSD in the ID population include aggression, disruptive or defiant behavior, self-harm, and agitation.²⁰ High PTSD rates among individuals with ID may be partially explained by lower IQ being associated both with increased risk of developing PTSD among trauma survivors and with worse PTSD severity.^{21–23} Historically, individuals with NDs were commonly institutionalized, and sexual abuse is four times more likely to occur in state facilities than in homes.²⁴

Finally, people with NDs may be more likely to suffer trauma due to over-punitive reactions to maladaptive behaviors, overtaxed or ineffectual caregivers, exploitation of their impaired judgment, and difficulty caring and advocating for themselves.¹⁶ This may explain why individuals with ND are up to five times more likely to experience physical or sexual abuse^{25–28} and 10 times more likely to be the victim of a crime than the general population.²⁹ One study¹⁴ found that nearly all ID offenders grew up in

unstable households and had psychosocial problems. Developmental adversity certainly appears to be a significant risk factor.

Trauma may mediate the link between NDs and crime. That is, high crime rates among those with NDs may be explained by high trauma rates rather than direct effects from the ND, itself. Among sex offenders, for example, those with ID have high sexual trauma rates and being an offender is linked with earlier victimization.³⁰ Potential explanations for how trauma is a mediator include trauma-related irritability or reactivity, learned behaviors from witnessing or experiencing violence, and lack of social skills due to neglect or deprivation. Taken together, these concerns indicate the need for improved support, supervision, legal protections, and clinical treatment of individuals with NDs to prevent and mitigate trauma and subsequent problems.

Prison population statistics also appear, at first glance, to implicate ID as a criminogenic risk factor. Individuals with ID make up 4 to 10 percent of prison populations, compared with 2 to 3 percent of the general population.⁶ There are many potential explanations for this, such as increased risk of arrest and conviction. Examining prison statistics requires separating getting caught from criminogenic risk. For example, at the time of a potential arrest, law enforcement officers may be more likely to react negatively to a person with ND who is predisposed to giving ambiguous responses that appear evasive or uses odd speech or mannerisms that seem suspicious.³¹ Furthermore, hypersensitivity and oddness in response to stress, variations in personal space needs and tolerance of physical touch, and vulnerability during transitions or routine changes could potentially lead to reactions that frighten or confuse police. Mindblindness, or not being attuned to social cues and motives, can lead people with NDs to be socially misunderstood and potentially arrested.³¹ Once arrested, individuals with ND are more likely to be charged and convicted. Conceptual misunderstanding, restricted affect, or empathy deficits may create the appearance that the individual lacks remorse in the views of police interviewers, juries and judges.¹² One survey of individuals with ID found that the majority believed a police officer would be on their side if they were arrested and stated that they would talk to police before talking to a lawyer.⁶ A substantial minority (38%) thought they could be arrested simply for having a disability. These findings

raise concerns about incompetence to waive *Miranda* rights, and risk of self-incrimination. Furthermore, suggestibility could lead to false confessions, and poverty could impede access to an effective defense (e.g., attorneys, experts, etc.). Police using subtle or even direct promises of leniency can affect the voluntariness of a confession in suspects with ID.³² These scenarios, along with the increased risk of victimization while incarcerated, have led many advocates and policy makers to develop strategies to divert individuals with NDs who would be better served with treatment rather than incarceration, such as preventive community mental health, law enforcement mental health trainings, jail mental health screening, and specialty courts.³³ Likewise, society has tended to recognize decreased culpability and “death-worthiness” among people with NDs,³⁴ such as in *Atkins v. Virginia* (2002), where the Supreme Court ruled executing individuals with ID is unconstitutional.³⁵

Although NDs are correlated with increased criminal justice involvement, it is unclear whether this is a direct causal link or better explained by other variables. The role of ND deficits could contribute directly to criminal activity, such as misunderstanding rules, poor planning to keep with legal expectations (e.g., attending court, community supervision), reacting aggressively, attending poorly to details to avoid criminal activity, and engaging in crimes to please associates. Other explanatory variables include misdiagnosis leading to over-inflated numbers, poverty and trauma mediating or confounding the correlation between NDs and crimes, and increased vulnerability to incarceration.

Competent to Stand Trial yet Insane

Most defendants with NDs who would qualify for NGRI are first deemed incompetent to stand trial (IST) and many are never restored to competency.³⁶ This is sensible considering that, unlike psychotic or mood disorders that remit with medications or the passage of time, NDs are relatively stable conditions that are neither episodic nor progressive (i.e., the severity is unrelated to time or duration).

Considering that ND severity is stable, it is common for some to question how someone with ND could be NGRI yet competent to stand trial (CST). Severity (e.g., IQ) may correlate with findings of IST or NGRI,³⁶ but clinical questions of severity are not directly correlated with legal questions of competency or insanity. That is, someone with borderline

intellectual functioning could be IST while someone with moderate ID could be CST, depending on competency-related abilities. For those with ID, CST and CR may entail coextensive capacities but there may be more distinction with ASD. For example, someone with ID may be rendered IST and NGRI by similar deficits in verbal and nonverbal reasoning, whereas someone with ASD may easily satisfy CST criteria, but have social cognition deficits that qualify for NGRI.

Although this may seem like a basic idea for many forensic examiners, it is important to note that questions of competency and insanity are independent from each other because it is surprising how often these get conflated in practice. Indeed, complex discussions among the authors and with other colleagues is initially what drove us to write this article. Although IST and NGRI have different legal standards and apply to different times (e.g., offense versus trial), it can often be difficult to explain such nuance in report writing or cross-examination. For example, a common obstacle might be reconciling how an individual might not understand, as a result of ND, that an offense was wrong and could result in legal trouble at the time it was committed (suggesting insanity), yet later understand the criminal charges and penalties (suggesting CST). Despite having a stable cognitive capacity, knowledge and understanding can change with habituation and supportive decision-making. ID defendants may not appreciate wrongfulness of their conduct at the time of an offense (because of impaired processing speed, working memory, and reasoning and planning; or lack of supervision, support, or structure), but over time (especially after a consequence) later understand that they are in trouble. Independent of changes in understanding over time, differences in the statutory language of IST and NGRI standards could also explain this apparent discrepancy. For example, in Michigan, the insanity statute requires that the person “lacks substantial capacity . . . to appreciate . . . the wrongfulness of his or her conduct,”³⁷ while the IST statute requires someone be “incapable . . . of understanding the nature and object of the proceedings against him.”³⁸ First, appreciating wrongfulness and understanding charges may have some overlapping concepts but they are different. Like other defendants, those with ID do not necessarily have to admit or believe what they did was wrong; they simply have to understand the nature of their charges and potential consequences to be CST. Secondly, lacking substantial capacity is different than being incapable, which

implies total lack of capacity. Thirdly, many legal scholars argue that understanding and appreciation are different, with the former indicating factual knowing while the latter indicates broader emotional knowing.³ Noting these differences and distinctions can help courts to understand how one could be opined both CST and NGRI.

Admittedly, the occurrence of an individual with ND being CST and NGRI is rare. Only one study has evaluated prevalence to our knowledge.³⁶ In that sample of 160 forensic referrals with ID, the majority of defendants were opined CST and responsible (66%), followed by IST and responsible (21%), IST and NGRI (13%), and CST and NGRI (0%). It should be noted that, of those opined IST yet ultimately found responsible, none were sentenced to incarceration. Rather, the most common disposition was that their charges were dismissed, followed by commitment and probation. Despite its rarity (and nonexistence in this study), defendants with ID have been initially adjudicated CST and NGRI, including in the authors’ personal experience. Furthermore, some defendants are initially adjudicated IST, subsequently restored to competency, and then adjudicated NGRI. For example, stalking often involves individuals with ND who lack substantial capacity to appreciate the distress that their behaviors cause their victims (i.e., NGRI). Some of them persist in not understanding that their behaviors are punishable until they interact (sometimes repeatedly) with police and lawyers prior to the time of a hearing (i.e., CST), while others require restoration services (i.e., initially IST).

NGRI Scenarios

Below, we address scenarios and rationales for which a defendant with ND could be NGRI, in the absence of comorbid psychotic and mood disorders. We include examples from the authors and hypothetical examples demonstrating how neurocognitive deficits in various domains (e.g., social cognition, language, memory, attention, executive functioning, emotional regulation, and impulsivity) relate to insanity prongs.

Prerequisite Conditions

Though jurisdictions vary greatly in their statutory language, the most common NGRI prerequisite condition is “mental disease or defect.” Though most jurisdictions do not explicitly define which clinical

diagnoses fall under these categories, legal scholars and forensic examiners generally consider “mental disease” to include severe episodic psychiatric disorders that develop and wax and wane during one’s life, such as psychotic and mood disorders.³ It is important to note that successful insanity findings are most associated with psychotic disorders.³ In place of mental disease, some jurisdictions use the term “mental illness” or “mental disorder.” Many statutes use qualifier words like “substantial” or “severe,” placing more emphasis on functional deficits related to the disorder than the specific diagnosis. The other major category is “mental defect,” which scholars and examiners generally consider to include stable, nonprogressive psychiatric disorders such as ID.^{3,37}

As of 2020, only three U.S. states explicitly use the term ID as criteria for insanity: Kentucky,³⁸ Michigan³⁹ and Mississippi.⁴⁰ In addition, two states use the pre-DSM-5 “mental retardation”: Maryland⁴¹ and Tennessee.⁴² Minnesota is the only state that uses “cognitive impairment.”⁴³ All six states use these terms in addition to a term synonymous with “mental illness” as their prerequisite conditions. In 2010, “Rosa’s Law” changed “mental retardation” to “intellectual disability” in most uses in federal law.⁴⁴

Based on their statutes, most U.S. jurisdictions would seem to include, explicitly or otherwise, ID as a possible prerequisite condition for insanity. It is possible, however, that some courts would not consider ID sufficient. For example, Florida excludes “defendants who have only an intellectual disability or autism” as grounds for NGRI, though not for IST.⁴⁵

ASD, although not usually excluded by statute, is rarely used as successful grounds for NGRI in the absence of comorbid psychosis, mood disorders, or ID. There are examples of ASD being used in criminal diversion or sentence mitigation, however, and advocates have argued that the law should often consider ASD as sufficient to meet NGRI prerequisite condition criteria.^{46–49}

Regarding other NDs, such as attention deficit-hyperactivity disorder (ADHD) or learning disabilities, there are some who would argue that these could potentially qualify for insanity, but this is rare and some jurisdictions exclude them.^{50–52} For example, the U.S. military’s exclusion of “nonpsychotic behavior disorders”⁵³ and Arizona’s exclusion of impulse control disorders could arguably extend to conditions like ADHD.⁵⁴

Cognitive Prongs

Most jurisdictions’ insanity laws have a cognitive prong, which is typically associated with the M’Naughten standard. Most of these jurisdictions have roughly synonymous terms, like “quality,” “character” or “consequence” in place of or in addition to “nature.” This cognitive prong relates to knowing the reality and likely outcomes of one’s behavior. When educating about the nature prong, forensic examiners most readily use examples involving psychosis, which, by definition, involves distorted perception of reality. After all, delusions or hallucinations can easily explain why some defendants might not understand the reality of their criminal conduct. In fact, Georgia specifies “delusional compulsion” as one possible criterion for insanity.⁵⁵ Individuals with ND without comorbid psychosis, however, may not have such obvious reality distortions.

Psychosis is not the only means by which someone’s sense of reality may be inaccurate or distorted. Conceptual thinking impairments, characteristic of ID, could lead someone to be unable to understand, factually or rationally, potential outcomes or risk. Reasoning problems could lead to dangerous, reckless and negligent behaviors that could result in criminal charges. Individuals with NDs of various sorts often have impaired social cognition, which involves encoding and applying information about others’ mental states (e.g., recognizing emotions, interpreting social cues). These deficits could lead individuals to fail to understand the nature of relationships and interactions with others, and to react inappropriately (e.g., overreactively, idiosyncratically, or indifferently). For example, a person with ASD could repeatedly follow and make unwanted contact with someone in a socially awkward attempt to become friends but lack substantial capacity to appreciate that such behaviors were considered stalking and caused the person to feel frightened and terrorized. Whether this is a question of insanity or failure of proof depends on the language of the statute but, in many jurisdictions, stalking is based on victim effect rather than perpetrator intent. Considering their social cognition deficits and difficulty adjusting to varying contexts (e.g., what not to say), people with ND can often call attention to themselves with unusual behaviors that others may not understand and be frightened by. Deficits of empathy and theory of mind could prevent anticipation of the consequences

of interpersonal behaviors³¹ and could impair understanding of the nature of a victim's response (e.g., related to attempted sexual contact).⁵⁶

The most common insanity prong across U.S. jurisdictions is "wrongfulness." Some jurisdictions do not explicitly define wrongfulness, while others refer to legal wrongfulness or criminality, or to moral wrongfulness or distinguishing "right from wrong." Concrete thinking is common among people with ND and could affect someone's ability to distinguish wrongfulness. For example, such individuals might not appreciate that child pornography is illegal because they rigidly believe everything on the internet must be legal. Inflexible thinking could lead to rule misinterpretations and difficulty knowing wrongfulness in different contexts. For example, being taught by one's father that it was permissible to urinate outside during a camping trip might lead to substantially impaired capacity to appreciate the wrongfulness of urinating in public or being taught by one's mother not to talk to strangers could lead to failure to follow a lawful order by a police officer. Abstraction impairments might lead to someone who has no concept of money or financial transactions committing theft. Suggestibility and gullibility make many individuals with ND vulnerable to manipulation, for example, by drug dealers living and operating out of their homes; they could be charged with maintaining a drug house all the while believing they were just helping "friends." Self-absorption is common among individuals with ASD and could lead someone to have an overriding obsession or drive to engage in or complete some task to the point of becoming unlawful.³¹ Measuring purported deficits and determining if they apply to an individual case can be a difficult task. It may be hard to differentiate a person who truly does not know an act is illegal from a person who falsely makes that claim. Often behaviors help with such differentiation. For example, a person willingly (or even giddily) showing child pornography to a parent or a police officer may indicate lack of appreciating wrongfulness, while lying about it or attempting to hide it indicates understanding.

In many of the above examples (some hypothetical and some based on the authors' personal experience), there is a lack of criminal intent and an alternate purpose to the conduct that led to criminal charges. It should be noted that in some of these cases pleading not guilty (*mens rea* defense) would be a more

appropriate or more potentially successful defense than NGRI, particularly because of the burden of proof. The burden is on the state to prove guilt for defendants pleading not guilty, but the burden shifts to the defense to prove insanity for defendants pleading NGRI. Proving insanity requires defense resources and satisfactory experts, something not always available, especially to public advocates.

Conformity Prongs

Because many people with ND have cognitive impairments, qualifying for insanity based on cognitive prongs may seem more likely at first glance. Cognitive prongs, however, are generally considered a higher threshold for NGRI than conformity or volitional prongs (e.g., after outrage over John Hinckley, Jr., being adjudicated NGRI, the U.S. federal government and many states tightened their statutes by changing conformity prongs to cognitive prongs³) Many jurisdictions have an insanity criterion related to lacking capacity to refrain from engaging in criminal conduct. These criteria have existed for over a century but are often associated with the American Law Institute standards.³ They usually involve language related to "irresistible impulse" or to the capacity to conform one's conduct to the requirements of the law. Teenagers and adults with ND often engage in behaviors that are not developmentally appropriate for their chronological age, such as excessive talking to strangers, name-calling, stealing, groping, masturbating, and disrobing. Many of these behaviors could be criminal *per se* or lead to confrontations that result in criminal conduct. Typically, impulsivity and poor judgment are not sufficient excuses to reduce criminal culpability. While we are unable to identify an instance of this occurring, theoretically one could make a compelling case for insanity in the case of ND when impairments of judgment, reasoning, planning, and problem-solving are integral to the mental condition. Still, forensic examiners should take care not to loosen insanity standards beyond that which is prescribed by law or search for means to achieve criteria (e.g., out of desire for ND advocacy).

Emotional and behavioral dysregulation is common among people with ND and could impair capacity to conform. For example, some individuals with ND have extreme reactions to changes in routine, to being teased, ignored, touched, to sensory overload, and to certain sounds or textures.⁴⁶ In these

situations, some people with ND display stereotypes or self-stimulatory behaviors (e.g., rocking, hand-flapping, self-harm), become angry, scream, threaten, throw tantrums, or engage in reckless or assaultive behaviors because they are not able to access more adaptive and healthy coping mechanisms. They may not yet have achieved a coping ability developmentally or they may not be capable of ever achieving that ability. A common example involves being charged with assaulting or resisting police after an officer yells at, grabs, or even gently touches a person with ND, sometimes in a counterproductive attempt to calm the person down during a stressful situation, because stereotypes make the person appear intoxicated or threatening, or simply because the person was not responding because of being emotional or displaying a lack of social reciprocity or self-absorption.

In addition to poor judgment, impulsivity, and emotional and behavioral dysregulation, people with ND commonly have fewer social and verbal skills. Social cognition impairments, pragmatic speech problems, and idiosyncratic words or phrases can often frighten or confuse others. This alone can lead to miscommunication or to stressful situations that lead to problematic interactions. Because of language deficits, externalized behavior often becomes a form of communicating distress (e.g., pain, frustration, sadness, fear). This can be compounded by increased stress because of the failure to be understood and to others negatively reacting to odd behaviors.

Evaluation Recommendations

As with all insanity evaluations, it is important to know the relevant statute and case law. As noted above, there are different prerequisite conditions, prongs and language used across jurisdictions. Most forensic evaluations involve interviewing defendants, reviewing records, interviewing collateral sources, and often psychological testing. These different aspects of the evaluation may need to be modified or receive special consideration when performing NGRI evaluations for individuals with possible ND.

Interviews

Often, when interviewing individuals with ND, deficits may not be readily apparent. Individuals may have adaptive strengths in some areas, such as good verbal skills, that mask or obscure other adaptive limitations. Individuals with ID who exhibit well-

developed expressive language skills may be more vulnerable because they often cannot meet others' expectations of their other diminished capabilities. Furthermore, people with ND may minimize their deficits due to shame or lack of insight or be more likely to endorse statements or propositions without fully understanding what was said. When answering questions, these defendants may provide confusing and sometimes inexplicable responses. Using simple, concrete language, and avoiding multisyllabic words, compound questions, and abstract language can help facilitate the interview. Frequent redirection, explanation and closed-ended questions can also be tried to gain understanding and keep the interview on-track. On the other hand, closed-ended questions may also prompt unreliable responses. Care must be taken, either way. Starting with nonthreatening questions will allow for practice at answering questions. Interviewers might also consider the strategy of checking true understanding by asking the evaluatees what their understanding is of the question before answering. Cross-questioning techniques (e.g., asking the same thing different ways at different times) can help distinguish the validity and reliability of responses. It can be helpful to match the defendant's mean length of utterance and to concretize ideas that are abstract.

CR interviews typically involve a narrative account of thoughts, feelings, behaviors and experiences at the time of an alleged offense. This can be difficult for persons with ID, who likely have more difficulty with recalling and communicating their frame of mind at a previous time. For example, individuals may have been depressed and agitated at the time of the offense but can be happy and content during interviewing. When asked about incidents, they may project their current feelings on the past. Similarly, ND defendants may erroneously state that they knew a behavior was wrong after being told by multiple people that it was wrong since their arrest. People with ND may also have deficits in relaying timelines or specific factual data that might resemble evasiveness in a person without ND. Individuals with mild or moderate ID often display speech that is egocentric in nature and focus on one aspect of an event.

Interviewers should be observant of common physical features and comorbid medical conditions associated with common syndromes related to ND. For example, short palpebral fissures, epicanthal folds, flat bridge of the nose, flat philtrum, and thin upper vermillion border are characteristic of fetal

alcohol syndrome, the most commonly known cause of ID and likely the cause of ID for a large number of individuals with cognitive deficits of unknown etiology.⁵⁷ Down syndrome, the most common genetic cause of ID, is associated with up-slanted palpebral fissures, simian palmar creases, hypotonia and early-onset Alzheimer's dementia. Fragile X syndrome, the most common heritable cause of ID, is associated with ASD, a large chin and forehead, hypotonia, macro-orchidism and light sensitivity. Rett syndrome is associated with females with ASD, microcephaly, seizures, and movement problems. Neural tube defects are often associated with ID, paralysis, incontinence, and hydrocephalus. Seizures are associated with several diseases and syndromes associated with ND. For example, about 30 percent of people with cerebral palsy have ID and approximately 40 percent of those have seizures.¹⁶

While interviewing the defendant (and collateral sources), it is important to focus on family, developmental, academic, occupational, and social histories. Family history is essential because about 20 percent of children of parents with ID also have ID themselves,³⁷ and because drug and alcohol use during pregnancy could indicate a possible etiology. When parents themselves have ID it is more likely that the individual did not benefit from early intervention (unless the parents were known to authorities or service providers) or from the advocacy and resources available to those with parents who are neurotypical. Developmental milestones, delays, and regressions are pathognomonic of ND, though defendants may be unaware of their own personal early childhood development. Asking about special education, grades received, skipped grades, learning difficulties and disciplinary problems can be helpful to determine cognitive and adaptive functioning. Absence of work history, menial labor, frequent job changes, and disciplinary problems may indicate adaptive functioning problems. Many individuals with ND support themselves with financial assistance from family or the government. Because ID is a stable condition, those who are unable to sustain employment usually only qualify for Supplemental Security Income, rather than Social Security Disability, which is reserved for those who have worked for a designated period of time.¹⁶ Similarly, individuals with ND may live most of their adult lives with family, caregivers, in group homes, adult foster care, or institutions, and often change residences frequently.

Extra attention should be paid to adaptive functioning skills and activities of daily living. Several inquiries are important: observing and asking about hygiene (e.g., frequency of showers and brushing teeth); food preparation (e.g., who typically cooks the food; what kinds of food does the defendant prepare; whether the defendant can use a microwave, stove, or oven), shopping (e.g., who does it; whether the defendant ever goes to the grocery store alone), finances (e.g., presence of payee, having an allowance, ability to make change during transactions), technology (e.g., ability to tell analog time, having a smart phone, ability to use a computer or play video games), and transportation (e.g., how they get places, history of having been granted a driver's license).

Collateral Records and Interviews

Some adaptive skills can be assessed directly during the interview (e.g., analog time, scenarios involving money and math), while others may rely on collateral sources (e.g., caregivers, family) for confirmation or clarification. Similarly, because people with ND are often poor historians (whether due to poor memory, poor insight, or minimization of problems), confirmation and elaboration of their self-reported history is important. Family and caregivers can often provide a better understanding of a defendant's functioning at the time of the crime than the defendant can. Attempts should be made to obtain medical records since birth, which may reveal a variety of *in utero*, neonatal, developmental, physical and mental problems. School records are particularly useful, especially individualized education plan reports, which often involve psychological assessment, and tests of IQ, language, academic performance, and adaptive functioning. It should be noted, however, that absence of evidence is not evidence of absence. That is, NDs often go undiagnosed, for various reasons: because individuals lived in an era or community without widespread recognition of ND; they did not have adequate advocacy or interventions by teachers or caregivers; their problems were misattributed to other causes (e.g., ADHD, conduct disorder, lack of effort); or because their problems were subtle and not obvious to the casual observer.⁵⁸⁻⁶⁰

Malingering

Feigning and exaggeration should always be considered in forensic settings, as there are multiple potential secondary gains (e.g., delaying a trial,

dropping charges, avoiding or minimizing punishment). Like the detection of other types of malingering, identifying inconsistency is key. It is important to be cognizant of inconsistencies between self-report and observation, between self-reported and real-life adaptive functioning, across tests of similar domains, and between the individual's history and presentation and those of typical individuals with ND.⁶¹ It can be very useful, during the interview, to note multisyllabic and advanced words that individuals respond to in a manner indicating comprehension, or spontaneously use themselves, especially when simpler words would have been sufficient (e.g., saying "I was generating revenue" rather than "I made money"). Examiners should also consider repetitive or script speech when assessing the use of advanced words (e.g., misusing advanced words can be informative as well), and it is also important to note that some inconsistencies are common among people with ID. For example, for 14 percent of people with ID, IQ scores change by at least 10 points on retesting.⁶² In addition, it is expected that individuals with ND will have some adaptive strengths (e.g., verbal skills, using technology) and other adaptive limitations (e.g., occupational, relational, location and utilization of community resources).

Unlike most other malingering, which involves over-reporting or falsely producing symptoms, the malingering of ID involves feigning the absence of functioning. Malingerers frequently put forth their claimed deficits, while individuals with genuine ND tend to minimize their deficits. Individuals feigning cognitive symptoms also often provide insufficient effort, while individuals with ID often appear ashamed or frustrated when they cannot answer questions (or are particularly proud when they can). For example, malingerers tend to have much lower measured IQ scores on tests than people with true ID.⁶³ Similarly, malingerers are likely to perform poorly on forced choice questions, to provide answers that are close but not quite correct, and to incorrectly respond to overly learned information (e.g., counting forward from 1 to 10).

Psychological Testing

Testing can be used both for diagnosis and for identifying malingering. Though ID requires deficits of intellectual functioning and adaptive skills, most guidelines rely only on standard IQ tests (e.g., Wechsler Adult Intelligence Scale, Stanford Binet,

Kaufman Adolescent and Adult Intelligence Test),⁶⁴ and there is no consensus or standard for assessing adaptive behavior.⁶⁵ Caution must be exercised when using the IQ test, alone, for diagnostic purposes. Strict IQ score cut-offs are inappropriate due to elimination of clinical judgment, limited comparability of IQs from different tests, and unreliability of test scores at extreme ends of the normal curve.⁶⁴ This is consistent with changes in the DSM-5 from previous editions,² focusing less on IQ and more on adaptive functioning deficits, and with *Hall v. Florida*,⁶⁶ in which the U.S. Supreme Court ruled that it was unconstitutional to use strict cutoffs for the diagnosis of ID for determining death penalty eligibility. Finally, it is important to note that, at the present time, standard IQ or adaptive behavior tests do not have embedded validity scales. Therefore, IQ tests can commonly be invalid due to lack of effort or feigning.

Fortunately, there are some evidence-based tests for exaggeration of cognitive symptoms, and these can be co-administered with standard IQ tests to assess for response style. The Validity Indicator Profile (VIP) was developed to identify feigned cognitive symptoms and has both verbal and nonverbal components that can be used individually or together to test for different cognitive domains. The Test of Memory Malingering is arguably the most evidence-based test for feigning memory deficits.^{63,67} It is a nonverbal test, which allows for use in people with various first languages and verbal abilities, and it is a forced-choice test, which makes it more likely to distinguish intentionally wrong choices from actual deficits. Even individuals with ID tend to get perfect or near perfect scores on the retention trial.⁶⁸ Other evidence-based tests of malingering memory include the Digit Memory Test⁶³ and the Rey 15-Item Memory Test,⁶⁹ both of which are relatively easy to administer. Besides those described, most other tests have poor specificity.^{63,70}

Conclusion

People with NDs are overrepresented in criminal populations and evaluating them for CR can often be a complex task for forensic examiners. Although there are certainly correlations between NDs and crime, studies do not clearly or consistently identify ND as a criminogenic or violence risk factor, and there are likely many other explanatory causal and mediating factors (e.g., trauma, socioeconomics).

Because individuals with ND often make their way through the criminal justice system, forensic evaluators need to be familiar with relevant statutes and adjust their interview style for individuals with ND. Many jurisdictions specify ID as one possible prerequisite for NGRI, but NDs may not be explicitly included or may be excluded. NDs, such as ID and ASD, in the absence of psychosis or mania, can often involve impaired cognition (e.g., comprehension, reasoning, social cognition) and behavioral dysregulation, which could qualify for cognitive and conformity prongs of insanity.

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