

Incriminating Developments

Scientists want to reform the study of how kids go wrong

By BRUCE BOWER

Raul, a 19-year-old prisoner in a California Youth Authority facility, remembers the hot summer night when his life changed. He was 16 years old, smoking marijuana in a fast food restaurant and showing off his new gun to 15-year-old Paco. Bored, they got in Raul's Chevrolet Impala and accompanied a car full of fellow gang members to a nearby town for a surprise attack on teenagers in a rival gang.

After parking, they crept on foot toward the house of a known enemy. Suddenly, a large group of opposing gang members appeared on the sidewalk. Raul's comrades, armed with knives and metal bars, exhorted him to shoot his gun into the hostile crowd. Eyes shut and heart pounding, Raul fired off a round of bullets that sprayed wildly into the darkness. He hurriedly reloaded and again emptied the weapon.

Police officers arrested Raul and Paco that night. One of Raul's shots had wounded a man on the street two blocks away; another bullet had struck and paralyzed a child sitting in his living room watching television. Raul now wonders how he became a gang member and whether he will be able to leave that life behind for something better.

Raul's story appears in *Gangs: A Handbook for Community Awareness* by Rick Landre, Michael Miller, and Dee Porter (1997, Facts on File). The young man's questions about himself are both tough and timely. In the wake of several recent shootings at schools by gun-toting youngsters, there has been no shortage of proposed explanations for why some children and teenagers turn violent.

Ironically, kid criminals have taken center stage at the same time that child development researchers are feeling a growing sense of unease with current methods of studying highly aggressive youngsters.

Researchers have documented an array of traits and behaviors that, according to statistical evaluations, occur more often among these children. They include impul-

siveness, inattention, hyperactivity, low IQ, low self-esteem (and, according to a new study, inappropriately high self-esteem), anxiety, depression, depletion of the neurotransmitter serotonin, troubled relationships with parents, and a tendency to see hostile intent in other people's neutral statements and actions. Some kids, however, overcome many such risk factors to lead exemplary lives, while others blessed with relatively fortunate circumstances



The reasons for violent behavior in young people have eluded current research strategies.

end up behind bars. The research simply cannot explain why certain individuals and not others opt for mayhem.

According to some developmental investigators, social scientists have tended to treat all severe forms of aggression in young people as psychiatric ailments, assigning them such diagnoses as conduct disorder and antisocial personality disorder. This approach obstructs insight, the critics say. A child's violent streak may be misguided and morally repugnant without reflecting a broken brain or disordered mind, they hold.

"It's obvious that some children misbehave for very different reasons than others," says psychiatrist Peter S. Jensen, associate director of the child and adolescent disorders research branch at the National Institute of Mental Health (NIMH) in Rockville, Md. "We need to think about how to get beyond correlational statistics and conduct disorder diagnoses so that we can better translate scientific findings into interventions that make a difference in children's lives."

For more than 100 years, scientific literature has reflected the notion that frequent aggression and violence in children stems from some sort of mental disorder. In 1980, repeated childhood aggression received official classification as "conduct disorder" in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM).

In the manual's current version, DSM-IV, the diagnosis of conduct disorder applies to all youngsters under age 18 who have misbehaved in at least 3 out of 15 specified ways during the past year—and in at least one of those ways in the past 6 months—causing serious social, school, or work problems. Acts that contribute to a diagnosis of conduct disorder include bullying, physical cruelty to animals, setting fires on others' property, stealing, running away from home, and regularly skipping school, beginning before age 13.

After age 18, similar behaviors—with some age-appropriate modifications—add up to a diagnosis of antisocial personality disorder.

The manual contains a note of caution to clinicians to "pay attention to the social and economic milieu in which undesirable

behaviors occur before making a diagnosis," since acts perceived as unruly may actually help a child to survive. As an example, the manual cites "immigrant youth from war-ravaged countries" who have become accustomed to stealing and physical violence as means to stay alive.

Despite the warning, researchers focusing on highly aggressive kids have nonetheless sought primarily to identify characteristics that statistically stand out in groups of youngsters who meet DSM criteria for conduct disorder. Study designs rarely

take a fine-grained view of each child's social circumstances.

Last month, editors of 30 leading child development and mental health journals, convening under the auspices of NIMH, issued a statement calling for increased publication of alternative forms of research. Potential approaches include intensive analyses of individuals on their home turfs and statistical tests of competing theoretical explanations for violent behavior.

Another sign of discontent with current experimental approaches to childhood behavior problems appeared in an editorial published in the April *AMERICAN JOURNAL OF PSYCHIATRY* (AJP). Written by psychiatrist and former American Psychological Association president Lawrence Hartmann, a private practitioner in Cambridge, Mass., the editorial openly expressed frustration with predominant scientific approaches in child psychiatry, as displayed in investigations reported in the same issue.

One study, directed by psychologist Mark G. Myers of the San Diego Veterans

Affairs Medical Center, found that a majority of substance-abusing teens diagnosed with conduct disorder subsequently met criteria for antisocial personality disorder as young adults.

Hartmann says that such studies are limited by a DSM-inspired assumption that the three diagnostic categories—conduct disorder, antisocial disorder, and substance abuse—exist as “discrete and solid things.” Many clinicians instead view such teenagers as pursuing a complex mix of behaviors that can be found in a number of psychiatric diagnoses and to which, not surprisingly, they often cling at least into their early 20s, he argues.

Thus, simply plugging youngsters into the DSM’s diagnostic niches at separate points in time will not illuminate the web of personal and social influences that foster and maintain aggressive and criminal acts, Hartmann argues.

As in many experimental studies of childhood mental disorders, Myers’ group took a statistical approach that focuses on an individual’s behavior but neglects “psychology and psychodynamics, family, society, biopsychosocial integration, and development,” Hartmann says.

Similar conceptual gaps mar another April AJP report, an intriguing long-term study of 85 boys diagnosed with attention deficit-hyperactivity disorder (ADHD) and 73 boys exhibiting no mental disorders, he adds.

As young adults, only 4 percent of the

ADHD boys still met criteria for that disorder or required medication for it, report psychologist Salvatore Mannuzza of the New York State Psychiatric Institute and his colleagues. However, 12 percent of the ADHD group as adults displayed antisocial personality disorder, and another 12 percent were illicit drug abusers. Much lower rates of these diagnoses occurred in the comparison group.

While such findings prove interesting, it remains unclear what proportion of the general adult population meets criteria for ADHD, Hartmann says. Moreover, explanations for the behavioral patterns picked up by Mannuzza’s group are hazy. A single neurological problem may underlie both childhood ADHD and later antisocial tendencies, or a variety of biological and social influences may shape the troubled behavior of youngsters who then receive a common diagnosis such as ADHD or antisocial or conduct disorder, Hartmann argues.

In the lexicon of DSM diagnoses, childhood behavior disorders have attracted criticism for lumping kids with neurologically based troubles together with those exhibiting temporary growing pains or pursuing violence as a reasonable response to dangerous surroundings. As a result, say critics, many healthy youngsters get labeled as mentally ill and are deemed in need of treatment, which may

include medication and psychotherapy, for their disorder.

Conduct disorder stands as a case in point, asserts psychologist Jerome C. Wakefield of Rutgers University in New Brunswick, N.J. A physically healthy 13-year-old boy, for instance, can receive this diagnosis for a combination of occasionally shoplifting and acting in ways judged as rebellious by his parents and teachers or for the trifecta of repeatedly skipping school, lying to adults, and running away from home, perhaps in response to sexual abuse.

Wakefield rejects DSM definitions of mental disorders as sets of observable symptoms that are independent of social context. In a series of papers, including one in an upcoming *JOURNAL OF ABNORMAL PSYCHOLOGY*, he maintains that for both children and adults, genuine mental disorders stem from disturbances of the brain’s natural functions that create symptoms deemed problematic by society.

Although harmful dysfunctions are tougher to pin down for mental than physical disorders, Wakefield acknowledges, their existence can be assumed to instigate many psychological conditions.

Conduct disorder, however, may occur when brains carry out functions for which they evolved, but which prove dysfunctional in present-day environments, hold psychologist Leda Cosmides and anthropologist John Tooby, both of the University of California, Santa Barbara. They argue that natural selection during the Stone Age yielded a bevy of brain mechanisms for making critical kinds of decisions, such as selecting a mate and detecting cheaters in social transactions.

Violent or insensitive treatment of young children by their caretakers may trigger assumptions better suited to an earlier era. The notion, for example, that the wider social world is a hostile place could lead to increased aggression and early promiscuity, Cosmides and Tooby theorize. Callous parenting may have been, in prehistoric times of food shortages and other harsh conditions, a cue for youngsters to strike out on their own and reproduce quickly and often (SN: 8/9/97, p. 94).

In today’s world, according to this view, aggressive and violent behavior in childhood may frequently represent an adaptive response rather than a mental disorder. This doesn’t mean that society should condone the acts of bullies and budding criminals, Cosmides and Tooby note. But it suggests that those who want to change such behavior need to look more closely at how different social environments can either provoke or discourage aggression in healthy children.

Wakefield agrees. “Conduct disorder is a tricky diagnosis,” he says, “because a bad environment can yield rational but violent behavior in some kids and promote harmful dysfunctions in others that result in severe behavior problems.”

Robert Spitzer, a psychiatrist at Columbia

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Our ancestors looked to plants and herbs for relief from common ailments such as colds, bruises, stomachaches, and sore muscles. For example, garlic has had many uses, from fighting colds and infections to repelling ticks. It has been taken medicinally in China since the 6th century. And echinacea, another herb, is used by the Plains Indians to fight colds.

Thomas Broken Bear Squier is an ex-Green Beret who contributed to the US Army’s survival manual. His first herbal training came from his grandfather, a Cherokee root doctor. He incorporates his broad knowledge into this practical, introductory, A-to-Z guide for anyone who wants to share in the immense wealth of herbal folk medicine. You’ll learn the historical and modern uses of every major medicinal herb, as well as how to prepare them and even harvest them from the wild. The engaging entries and cross-referenced appendix of ailments make this book an excellent resource.

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University and a leading force behind DSM's symptom-oriented approach, sees Wakefield's idea as a "major advance in thinking about psychiatric disorders." Spitzer agrees with the Rutgers psychologist that it's often difficult to tell whether a child diagnosed with conduct disorder misbehaves as a result of disturbed brain function.

Developmental psychologist John E. Richters of NIMH criticizes the assumption that genuine psychiatric conditions reflect disturbances in brain mechanisms that were determined by Stone Age natural selection. Neuroscience research continues to uncover great plasticity in human brain development, a sign of individual flexibility in responding to one's social and physical surroundings, Richters says. In his view, the "openness" of brain design raises doubts about scientists' ability to label with confidence certain mental functions as either natural or dysfunctional.

Children with healthy brains may reasonably adapt to features of their lives by behavior patterns that nonetheless satisfy criteria for psychiatric disorders, Richters proposes. For example, constant exposure to such evolutionarily novel stimuli as rapid-fire images on television shows and in computer games, as well as demands from

toddlerhood on that a child sit patiently for hours at a time and learn abstract information in classrooms, may influence brain development in ways that render some children highly impulsive and distractible.

Researchers need to refocus their energy on identifying what may turn out to be diverse clusters of biological influences and social experiences that push kids toward a common diagnosis such as conduct disorder, Richters contends (SN: 6/7/97, p. 356). There's currently no way to tell whether the proverbial "at-risk" child who skips school, steals, and hangs out with a gang really suffers from an enduring psychiatric condition that will haunt him or her throughout adulthood, the NIMH researcher says.

In fact, the vast majority of teenagers in industrialized societies engage in at least a few delinquent acts without going on to a life of crime (SN: 4/15/95, p. 232).

The unpredictability of development for even the most aggressive youngsters has particular poignancy for Richters. As he puts it, "I now make my living studying what I once was."

Richters grew up thumbing his nose at authority and learning the ropes of street crime. His misbehavior caused him to be thrown out of ninth grade at three different public schools. Dropping out of school left him with more time for burglaries, car

thefts, muggings, and drug dealing. As a teenager, he was forcibly committed to a state psychiatric hospital for a month and repeatedly ended up in jail for short stays. Richters' criminal activities eventually earned him an adult felony record.

"I met reasonable criteria for psychopathology at that time," he says.

He later earned a high school equivalency degree and entered the University of Hartford at age 29. With the help of the university's president, who became his mentor, Richters flourished in academia. His felony record was officially taken off the books in 1987.

Richters now coordinates federally funded investigations of childhood antisocial behavior and conducts his own research in this area.

Perhaps investigators of childhood psychiatric disorders will, in a collective emulation of Richters' inspiring turnaround, transform their field. Psychologist Richard M. Lerner of Boston College, a member of the NIMH-sponsored editors' group, hopes so.

"We need to promote the legitimacy of supplementary research methods that look at how behavior develops in real-world settings," Lerner says. "Quantitative analyses by themselves distort the complexity of life and can't be readily used by policy makers." □

Earth Science

Great earthquake shakes off theories

On March 25, the world's largest earthquake in 4 years rattled the ocean bottom between Antarctica and Australia, a region so remote that the tremor went unfelt except by nearby penguins and other wildlife. The great quake, which measured magnitude 8.2, has stymied seismologists who are trying to understand why a normally stable patch of the seafloor turned so trembly.

"It's really kind of a befuddling earthquake because it seems to violate a lot of the usual rules," says Douglas A. Wiens, a seismologist at Washington University in St. Louis.

Most giant earthquakes occur in distinct seismic zones, where two of Earth's surface plates scrape against each other. The March quake, however, struck within the Antarctic plate nearly 350 kilometers from the nearest border with another plate, says Wiens. Seismologists call these sorts of events intraplate earthquakes. The recent tremor was the largest intraplate quake ever recorded in the oceans, Wiens and colleagues report in the July 28 *Eos*, a publication of the American Geophysical Union.

The researchers raise a number of possible theories to explain the quake, but "none of the ideas are really that attractive," says Wiens. Some intraplate earthquakes occur because the ocean crust cools as it ages, but this process hadn't produced such a large tremor in the past. Researchers have identified other intraplate quakes as delayed after-effects of the last ice age; when the glaciers melted, the formerly weighed-down crust rebounded upward and put stress on the ocean floor. Wiens, however, rejects this idea because the March quake hit some 400 km north of Antarctica, a long way from the area that was depressed during the last ice age.

Compounding the mystery, seismic records show no evidence of any other earthquakes in the region going back to the 1960s.

Answers could come from more detailed studies of the seis-

mic waves that crisscrossed the globe after the March quake, says Wiens. Researchers would like to send a ship to the region to probe the seafloor and set down temporary seismometers to record aftershocks, but the chances of getting to such a remote location are slim. —R.M.

Cars crossing the Pacific

Thousands of toy cars and party balloons are currently floating across the Pacific Ocean and should wash up on North American shores just in time to celebrate the turn of the millennium, according to an oceanographer who tracks the path of flotsam around the world.

In his newsletter, *BEACHCOMBERS' ALERT*, Curtis C. Ebbesmeyer reports that a hundred thousand miniature cars and a million balloons fell off a cargo ship south of Japan last January. Ebbesmeyer, an oceanographic consultant with Evans-Hamilton of Seattle, teamed up with W. James Ingraham Jr. of the National Oceanic and Atmospheric Administration in Seattle to investigate the fate of these objects. Ingraham used a computer model of winds and ocean currents to forecast where these pieces will head if they remain afloat. According to the simulation, the objects should drift almost due east across the ocean, reaching Oregon, Washington, and British Columbia by January of the year 2000.

Ebbesmeyer and Ingraham have previously had success predicting the movements of sneakers, plastic bathtub toys, and hockey gloves that floated across parts of the Pacific. They've also had failures, notes Ebbesmeyer. In 1996, the University of Washington in Seattle lost an unmanned research submersible at sea and turned to Ebbesmeyer and Ingraham for help. The oceanographers modeled where the sub might go, but it was never found, he says. —R.M.