Violent children and adolescents

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Introduction

Violence is surprisingly common in children and adolescents: four longitudinal studies in the United States using youth self-reports have shown that by age 17, 30%-40% of boys and 16%-32% of girls have committed a serious violent offense, defined as an aggravated assault, robbery, gang fight, or rape (U.S. Dept. Health and Human Services 2001). Only a small fraction of these offenses resulted in arrest. Despite the dramatic drop in youth homicide rates since 1993, homicide remains the second leading cause of death in 15 to 19 year-olds, after accidents and ahead of suicide, accounting for approximately1900 deaths in the United States per year between 1999 and 2004, a rate of 9.3 per 100,000 (Centers for Disease Control and Prevention 2007). Violence in youth appears in many forms, ranging from the benign, relatively friendly wrestling on the school yard playground, through such varieties as bullying and dating violence, and ranging at the more extreme end to gang-related killings and school shootings with multiple victims. Developmentally, the onset of violence is a childhood and adolescent phenomenon: if a person has not committed a serious violent offense by his or her early twenties, the likelihood he or she will ever do so is quite low.

While mental health clinicians tend to look at violence as a mental health problem or symptom, it is not at all clear that youth violence is best thought of as caused by mental health problems, or that the most efficacious interventions are traditional mental health interventions. Youth violence is a major public health concern and a focus of the juvenile justice system in addition to being a problem facing mental health clinicians. It is therefore important for clinicians dealing with violent youth to keep other perspectives – and types of intervention – in mind. While few now look at adult criminals and expect the mental health system to prevent their recidivism, delinquent youth are seen as more amenable to mental health intervention, and a central mission of the juvenile court is to rehabilitate them. Those whose violence is a product of a psychotic illness make up only a small minority of youth whose violence is a focus of attention. Therefore, while many of the general principles pertinent to the assessment and management of adults detailed elsewhere in this volume are relevant to the assessment and treatment of violent youth, because of youths' developmental differences, different living circumstances, different precipitants, and different legal status, approaches to younger patients are often different from those utilized with adults. Key differences are shown in Table 1.

Table 1. Key differences between violent behavior in adults and adolescents

Category	*Compared to adults, for adolescents:*
Epidemiology	Violence is much more common
	Homicide accounts for a higher proportion of all deaths
	Violent careers are shorter
	The onset of violence most commonly occurs in adolescence, sometimes in childhood, and rarely in adulthood
Diagnostic differences	Conduct disorder is specific to children and adolescents and diagnosed on Axis I
	Antisocial personality disorder can not be diagnosed below age 18 and is diagnosed on Axis II
	Psychotic disorder is much less common
Behavior patterns	Violent behavior occurs more in groups
Treatment	Peer group considerations are key
	Family involvement in treatment is more important
Legal status	Confidentiality and consent issues are more complex because minors typically can not consent, control record release, or waive rights against self-incrimination
	Legal consent for treatment needs to be provided by someone other than patient
	Hospitalization over the patient's objection can often be accomplished without resorting to civil commitment
	Patient's responsibility for treatment compliance is reduced
	Much criminal behavior is adjudicated in juvenile court

Epidemiology

Aggression is a common behavior in a child's development. A high percentage of an 18 month-old's peer interactions involve aggression, often in reaction to frustration or wanting something another child has. By age 2½, after the child has developed more social skills and language, the frequency of physical peer aggression drops significantly, and continues to decrease until age 6, as most children shift to verbal types of aggression. Most of the preschool child's aggression is directed at peers. Much of how a child learns to handle aggression is mediated by parenting, so children who deviate from normal development who are identified early can often be helped by parent interventions.

Aggression remains common in elementary school children. Data from a large scale longitudinal survey of Canadian children indicate that parents rated as sometimes or often true that over a third of boys and about 30% of girls aged 4 – 11 get into many fights, and about one fifth of boys and one tenth of girls physically attack people (Offord, Lipman and Duku 2001). Of the 15 *DSM-IV* criteria for conduct disorder (CD), seven code for physical aggression (American Psychiatric Association 2000), so rates of CD give some indication of the frequency of rates of maladaptive aggression in elementary school-aged children. Epidemiological studies report rates of CD in elementary school-aged boys from about 3-7% (Loeber et al. 2000) and considerably lower rates in girls.

Violence is common throughout adolescence: in the United States, about 30% of 12 year -old boys and 25% of 17 year-old boys surveyed in a large-scale study in 2005 reported having gotten into a serious fight in the past year (U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration and Office of Applied Studies 2006). For girls, the rates were only about one-third lower. In the same study, about 10% of adolescent boys and 3-4% of girls reported that in the past year they attacked someone with intent to seriously hurt the victim. Bullying is a common middle school variant of violent behavior practiced by about 13% of 6th to 10th graders (Nansel et al. 2001). Adolescent dating violence also occurs with high frequency. In a nationally representative sample of high school students, about 9% of both girls and boys reported being physically hit by a boyfriend or girl friend in the previous year (Centers for Disease Control and Prevention 2006). Interestingly, the rates of dating violence were not significantly different for boys and girls, unlike most other forms of violent behavior. Dating violence was most strongly associated with the risk factors of being sexually active and having attempted suicide. The cumulative prevalence of committing a serious violent offense by age 17 is estimated at 30-40% for boys and 16-32% for girls. Although African-American youth are arrested at much higher rates than white youth, self-report data cited above show much smaller racial differences. The peak age for the onset of violent behavior occurs in adolescence, around age 16 for boys (Elliott 1994).

These rates of violence appear to have been fairly stable over the past several decades (U.S. Dept. Health and Human Services 2001). However, adolescent homicide rates have been quite variable: rates for white males tripled from 1964 to 1991, and then over the next 10 years fell back to the rates of the 1970s (National Center for Health Statistics 2004). Thus while the frequency of violence has remained fairly constant, the *lethality* of that violence has varied considerably. Both the increase and decrease of adolescent homicide rates were linked to changing rates of using firearms by adolescents (Snyder and Sickmund 2006). The involvement of youth in the crack trade and increased gang activity led to an increase in youth homicide. Fear on the street led more youth to carry handguns for protection, despite the fact that possession of a handgun by an adolescent is illegal, which led to more homicides and a spiraling cycle of yet more fear (Blumstein 2002). In the mid-1990's, one study showed almost all incarcerated male delinquents owned a handgun (Ash et al. 1996). Possession of a handgun markedly raises the potential lethality of a violent confrontation. After the mid-1990's youth (and, to a lesser extent, adult) violent crime rates dropped markedly. The reasons for the crime drop remain controversial, but appear related to increases in the prison population, increases in the number of police, the decline of crack, and legalized abortion (Levitt 2004). The cycle of fear went into reverse, and firearm carrying by youth decreased. The central role of guns in the lethality of youth violence obviously has major implications for intervention.

Developmental trajectories

Much of what we know about the development of violence has been learned from longitudinal studies of youth. The majority of researchers recognize at least two main patterns, an early onset trajectory, in which the youth engages in serious violence before puberty, and a late onset group who do not engage in serious violence until adolescence (Moffitt 1993; National Institutes of Health 2004; U.S. Dept. Health and Human Services 2001). Significant differences between these two trajectories are shown in Table 2. Those with early onset have more severe and longer courses and are more difficult to treat. With research currently available, the late onset group cannot be identified prospectively from preadolescent symptoms, although in retrospect they experienced many childhood risk factors.

Table 2. Comparison of developmental trajectories towards violence*

Characteristic	Early onset	Late onset
Onset of offending	Before puberty	After puberty
% of serious violent offenders	30% ± 15%	70% ± 15%
Violent career > 2 years	13%	2%
Strongest risk factors (effect size r> .30)	General offenses Substance use	Weak social ties Antisocial delinquent peers Gang membership

* Data excerpted from Surgeon General's Report on Youth Violence (U.S. Dept. Health and Human Services 2001)

Children first learn to manage their aggression from their parents in toddlerhood, and poor parenting in this period sets the stage for later problems (Tremblay et al. 2004). Poor parenting may involve coercive and abusive parental behavior, neglect, coercive parenting, parenting by antisocial parents, poor limit setting, or general family dysfunction. Oppositional defiant disorder (ODD) is a frequent precursor of more serious aggressive behavior, and about 30% of those with early onset ODD progress on to conduct disorder (CD) (Connor 2002; Loeber et al. 2000). Of those with CD, about 40% will progress to antisocial personality disorder (Zoccolillo et al. 1992). The most potent risk factors for preadolescent violence are general, non-violent criminal offenses, and preadolescent substance abuse (Hawkins et al. 2000), while peer effects become the most potent risk factor in adolescent onset violence. For both early onset and adolescent onset types, there appears to be a developmental progression of offenses, beginning with minor crime such as vandalism and shoplifting, then progressing to aggravated assault, then robbery, and then rape (Elliott 1994). That robbery precedes rape in over 70% of cases is some of the strongest evidence that rape is a crime of violence, not a crime of sex. Longitudinal studies suggest that most serious violent crime – in fact, most youth crime of all types – is committed by a relatively small minority of offenders. While over a third of adolescents have committed a serious violent offense, about 5-10% of youth are committing over 75% of the violent crimes (U.S. Dept. Health and Human Services 2001).

Substance abuse, especially alcohol and marijuana, and mental disorder are common among incarcerated delinquents. Excluding conduct disorder, about two-thirds of incarcerated delinquents meet diagnostic criteria for an axis I mental disorder (Marsteller et al. 1997; Teplin et al. 2002), and exhibit rates of disorder about triple that of the normal population. Axis II personality disorders are also more common among adolescent offenders (Johnson et al. 2000). However, whether there is a causal link between mental disorder and violence in adolescence remains unclear.

The good news is that for most youth, violence is limited to adolescence: even among early onset type, fewer than 1 in 7 continue as serious violent offenders into adulthood. The fact that so much violence is limited to adolescence has important social policy implications. Zimring (2005) has suggested that we consider adolescents as having a "learner's permit" to experiment, recognizing that experimentation will bring with it mistakes. Juvenile justice policy, in his view, should aim to minimize the harm of those mistakes and help those who have trouble learning from them, rather than focusing on punishment.

Risk factors

Compared to the general population, the high rates of violence in adolescence indicate that adolescence itself is a risk factor. The considerable literature on risk factors for youth violence demonstrates numerous risk factors at the levels of individual, family, and community (Connor 2002; Hann 2002; Hawkins et al. 2000). The risk factor literature is complex for several reasons. First, violence is a heterogeneous group of behaviors, and risk factors differ for different types of violence. Second, not only are there numerous risk factors in different domains, but given the dynamic nature of development, different risk factors become salient at different

ages. For example, having a delinquent peer group is a potent risk factor for adolescents but not for preadolescents. Third, risk factors may interact: for example, there is considerable evidence from twin and adoption studies that some genetic risk factors, such as having an antisocial biological parent or having the low MAO-A allele, are much more likely to be expressed in violent behavior when an adopted child is raised in an adverse home environment (Caspi et al. 2002; Foley et al. 2004). Finally, as with suicidality, no combination of risk factors can predict with much confidence whether a particular individual will become violent. From a public health perspective, knowledge of risk factors guides prevention efforts; from a clinical perspective, risk factors provide a structure for obtaining information and may point towards areas needing intervention.

Some of the many risk factors noted in the literature are listed in Table 3.

Table 3. Risk Factors for Violence

History of prior criminal acts, incl. non-violent offenses
Individual Factors
- Biological factors
  - Physiological under-arousal, including lowered heart rate
  - Impairments in frontal lobe functioning
  - Abnormal serotonin
  - Temperament
  - Antisocial biological parent
- Psychopathology
  - Psychopathy
  - Oppositional defiant disorder, conduct disorder
  - ADHD, substance abuse, mood disorder
- Poor social skills
- Poor school performance
  - Learning disabilities
  - Low IQ

Family factors
- Poor parenting, including abuse and neglect
- Antisocial parent
- High family dysfunction

Negative peer relations
- Delinquent peers
- Gang membership

Community
- Neighborhood crime
- School tolerance of bullying and deviance
- Disadvantaged neighborhoods
- Availability of drugs

Case examples

Case 1. Early onset course

Bruce, age 13, was referred for treatment as a condition of probation for carrying a handgun while "on duty" as a lookout for a drug seller. He presented as an irritable teenager who initially resented having to come, but was quite talkative in the initial evaluation session. He had been in foster care for 3 years beginning at age 4 when his mother was sent to prison on a drug charge, but was returned to her care when he was 7. His father was unknown. His mother reported oppositional behavior at home after age 7 and theft from other youths at school. Despite this history, he had obtained a C average in school. When he was 9, he got mad and killed a dog with a baseball bat, and a year later, got angry during a baseball game and hit another player with a bat. The school reported he was a bully and hung out with a peer group that harassed other students. He had recently joined a gang and proudly showed the evaluator the gang tattoo on his shoulder.

Case 2. Possible school shooter

Jeremy, age 13, was suspended from school pending "psychiatric clearance" when a teacher found him doodling pictures of guns on a piece of paper that was entitled "Hit List" and listed 6 students in his class. Jeremy had no known history of violence, but did have a long history of not fitting in with peers. A previous therapist had diagnosed him with pervasive developmental disorder NOS. Academically he had obtained average grades. He had complained to his parents that "lots of kids make fun of me" and that he had been bullied at school on numerous occasions. At the request of the evaluator, his parents checked his computer for recent sites visited and found that he had visited a number of sites dedicated to the Columbine and Virginia Tech school shootings. His father liked to hunt and had 4 rifles in the home.

Assessment

Violence, both prospective and completed, encompasses a wide range of behaviors that call for differing approaches to assessment and intervention. Violent youth are involved in multiple systems, and depending on the referral, a clinician may take one of a variety of roles, such as primary therapist, medication manager, or forensic evaluator, each of which will call for a different type of assessment. Table 4 highlights some of the dimensions in assessment that provide important information for assessing risk and developing a treatment plan. In a full assessment, it is important to obtain information from collateral sources, including parents, schools, and often peers.

The assessment should take place in an environment where both the clinician and patient can feel safe. For high risk youth, this requires a setting where the youth can be screened for weapons, is free of objects which can be used as weapons, and where others are rapidly available in the case of an impending assault from the patient.

Consent and confidentiality

In discussing past violence with a youth, the interviewer may be hearing about criminal acts, and since such information could potentially be utilized to further criminal prosecution, issues regarding informed consent and confidentiality need to be thought through carefully. Consent issues are more complex with minors for a number of reasons. First, minors typically are not deemed competent to provide legal consent and do not control access to their medical records. Second, minors are less able to understand the implications of material that could constitute a confession, and are more likely than adults to defer to the wishes of authority to provide incriminating information. Third, because of the rehabilitative mission of juvenile courts, juvenile courts have

looser standards for admissibility, and juvenile judges have considerable discretion in how they utilize mental health information in apportioning rehabilitative services and punishment. Finally, even when information is obtained in a relatively confidential treatment context, if the youth later enters the custody of the juvenile justice system such information may be released. The evaluator therefore balances the need to obtain relevant information, the ability of the youth to understand the confidentiality and self-incrimination parameters of the assessment, and in what manner that information is presented in written records and reports. This judgment will vary depending on the nature of the assessment: an evaluation for outpatient treatment will be quite different from a court-ordered assessment of whether a delinquent youth is dangerous and should be transferred to adult criminal court jurisdiction. At the outset of the evaluation, the nature of the evaluation and how the information may be used should be explained in terms developmentally appropriate to the youth, and information in written records should be worded in a way that does not provide evidence for prosecution (*e.g.*, "gave a history of shooting at a person," rather than "shot Mr. Jones on March 13 of last year").

When treatment is mandated by the juvenile justice system, such as by a probation requirement or in a detention facility, confidentiality constraints need to be clear. Will the therapist be involved in making dispositional decisions? Will the outpatient therapist be in communication with other care providers? How much information will be given to law enforcement and correctional personnel? Given that effective intervention usually involves a multimodal approach, communication with other care providers is usually essential, but the clinician should be clear with the patient just what sorts of information will be shared and what will be kept confidential.

Table 4. Dimensions to consider in assessing youth violence

Clinical component	*Example issues*
History of past violence	Developmental trajectory, age of onset, recent behaviors
Social setting	Individual vs. group offending Nature of relationship to victim (intrafamilial – stranger) Gang involvement
Psychiatric diagnosis	Comorbid conditions such as ADHD, PTSD, mood disorders, pervasive developmental disorder, or psychopathic personality traits
Risk factors	See Table 3
Protective factors	Intolerant attitude towards deviance, high IQ, commitment to school
Intent	Impulsive vs. predatory
Potential lethality	Carrying weapons
Imminence of risk	Near future, long-range risk

History of violence

Overall, the best predictor of whether a behavior will occur in the future is whether it is occurring in the present or has in the recent past (Tremblay and LeMarquand 2001). Therefore, a history of violence is key. The clinician needs to obtain both chronological detail (such as when violent behavior began and with what frequency it continued) and detailed knowledge of violent events (precipitants, emotional state during the assault, nature of the assault, feelings after). As with any interviewing, less structured interviewing may obtain details missed by structured questioning. One useful approach for discussing a violent event with a child or adolescent is to say, "Let's suppose I was going to make a movie of what happened. Could you describe what happened in enough detail so I could do that," and then follow up with questions about the event and what led up to it, and then, once the external nature of the event is clear, go back and ask about feeling states at key points, "Tell me what was in your mind when he said [or did] …"

In addition to obtaining history of violent episodes from the child, it is important to obtain collateral history from other sources, such as parents, school, police reports, and, in some cases, peers.

Diagnosis

The most common psychiatric diagnosis applied to youth with histories of violence is conduct disorder (CD), whose main criterion is "A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) [of the listed behavioral criteria that include bullying, getting in fights, using weapons, and robbery]" (American Psychiatric Association 2000). CD is thus a phenomenological diagnosis encompassing a wide range of antisocial behaviors. Children with CD typically have a history of previous oppositional defiant disorder (ODD), a diagnosis characterized by a pattern of negativistic, hostile, and defiant behavior, but ODD does not have aggressive behavior as a criterion. The American Academy of Child and Adolescent Psychiatry (AACAP) has published practice parameters for the evaluation and treatment of CD (1997) and ODD (2007). Antisocial personality disorder (APD) can only be diagnosed in adults, and has as one criterion that there was evidence of CD prior to age 15. ODD and CD are Axis I disorders, but when they progress to APD, the condition is classified as an Axis II disorder. For intervention purposes, the construct of psychopathy, which is not included in the DSM, may be useful. Psychopathy encompasses the lack of remorse and the lack of empathy components of APD, but does not include the more behavioral components. The most common metric for APD, the Hare Psychopathy Checklist, does have an adolescent version, the PCL:YV (Forth, Kosson and Hare 2003)(see rating scales, below). Personality disorder has been associated with recidivism in delinquents (Steiner, Cauffman and Duxbury 1999)

A comprehensive psychiatric diagnostic assessment is useful to delineate disorders that may be contributing to violence risk. Violence can be a symptom of many diagnoses in addition to CD, including pervasive developmental disorder and bipolar disorder. CD has a very high comorbidity with attention deficit hyperactivity disorder (ADHD). Many violent youth give histories of exposure to violence, either as a victim or as a witness to violence, and may meet criteria for post-traumatic stress disorder (PTSD). Substance abuse is a significant risk factor, especially for preadolescents, and participation in a drug culture likely exposes the youth to violence. Treatment of underlying conditions likely lowers violence risk.

Risk factors and risk assessment scales

Risk factors listed in Table 3 can provide a structure for obtaining important information. Which risk factors are especially relevant depend on the age and clinical situation. For example, biological factors appear most potent in the context of adverse parenting and are most relevant in young children, a history of bullying by a latency age child should spur an inquiry into school attitudes and policies towards such behavior, and questions about gang membership and peer activities are especially relevant for adolescents.

There has been rather limited work on protective factors, which are thought of not simply as the absence of risk factors, but as factors which independently reduce the effect of risk factors. Proposed risk factors include intolerant attitude towards deviance, high IQ, and commitment to school (U.S. Dept. Health and Human Services 2001), but more research needs to be done in this area.

Following work on adult actuarial risk assessment scales, there have been efforts to modify those scales to apply to adolescents (Vincent 2006). The two scales that have the most psychometric support are the The Psychopathy Checklist: Youth Version (PCL:YV) (Forth, Kosson and Hare 2003) and the Structured Assessment of Violence Risk in Youth (SAVRY) (Borum, Bartel and Forth 2005). The PCL:YV utilizes a 60-90 minute expert interview and provides a score, but does not have cutoff values for categorical diagnosis or risk of violence. The SAVRY guides trained evaluators in a systematic assessment of risk factors associated with violence. Evaluators then make structure professional judgments in considering the applicability of each risk factors to the adolescent being evaluated. This leads to a final determination of risk as low, medium or high. Thus far, prospective validity of these scales has not been demonstrated, but they do provide a structure for assessment. There is much weaker empirical support for structured

risk assessment in girls (Odgers, Moretti and Reppucci 2005), and even assessments for case management of girls are more problematic.

Predatory violence

It is clinically useful to distinguish between aggression that is impulsive, reactive, hostile, and affective, and aggression that is predatory, instrumental, proactive, and controlled (Jensen et al. 2007; Vitiello and Stoff 1997), although many youth exhibit both. There is some evidence that different neural pathways are involved (Blair 2004). The assessment of case 1 in which there is a clear history of past impulsive participation in group violence will be different from the assessment in case 2 where the key issue is risk of an individual acting alone in a cold-blooded, predatory manner. A youth planning predatory violence is more likely to conceal his thinking than a youth who acts impulsively. Therefore, more indirect information is necessary. While psychiatrists who work with youth are experienced in obtaining collateral information from parents, they are less likely to be experienced in obtaining information from peers. Yet the evaluee's friends are the most likely – more than parents – to have heard the youth express threats, even if the friends did not take the threat seriously. One commonality in the mass school shootings by adolescents is that each of the shooters had expressed threats towards others prior to the event (Verlinden, Hersen and Thomas 2000). Depending on the level of risk suggested by other indicators, a youth's friends can be telephoned (with the permission of the patient), or, in higher risk situations, friends may be questioned by law enforcement personnel. Whenever risk of predatory violence by an adolescent is a serious consideration, if at all possible some friends should be talked to.

The second key principle in assessing risk of predatory violence is to think in terms of a pathway towards violence (Borum et al. 1999). This threat assessment approach, first developed for the U.S. Secret Service (Fein and Vossekuil 1998) and later adapted to school threat assessments (O'Toole 1999; Vossekuil et al. 2002) advocates focusing less on the profile of the subject, and more on whether the subject is taking steps towards targeted violence. The path begins with fantasizing about killing, then progresses to beginning planning, which might involve increased interest in weapons or learning about how others have conducted mass shootings by reading on the Internet, and then moves on to more detailed preparation, such as obtaining weapons, scouting out sites, and following potential victims. The further along this path a person is, the more risk he poses. It is not necessary for a person to make a threat in order to be a threat. Since an interviewee may deny intent to harm, in interviewing a potential attacker, one also looks for "leakage," such as interest in weapons and interest in other attacks, that may indicate moving on a path towards violence. It is also important to explore the motivation for the behavior that brought the subject to attention. In Case 2 of the potential school shooter, it would be important to explore what he had in mind when he wrote the "Hit List." For cases that seem to pose medium to high threat, a team of investigators may be necessary to search for possible physical evidence or interview corroborative sources. It should be remembered, however, that the base rate of mass shootings is so low that the efficacy of this approach has not been empirically tested.

Weapons

Because of the close link between weapon carrying and the lethality of violence, a weapon assessment should be part of the evaluation of any youth being assessed for violence. In one study, the rate of firearm ownership by boys who have been in detention approaches 100%, and for girls is about half that (Ash et al. 1996). The assessment should include a history of how and when the youth first obtained a gun, subsequently obtained weapons, and has access to non-owned guns in the home or from peers. For impulsive aggression, the issue is less one of access, since most youth can obtain a gun if they really want one, than how frequently, for what reasons, and under what conditions the youth carries a weapon, and how often and under what conditions he has fired at a person and demonstrates an intent to use (Ash 2002; Pittel 1998).

Formulating a risk assessment

Clinicians are often asked to formulate a risk assessment, as in Case 2 where the risk to

the school is the referral question. The clinician should recognize that there is less research on the accuracy of predictions of dangerousness of adolescents than there is for adults. No combination of risk factors has been shown to predict with accuracy in an individual case. Therefore, the clinician should acknowledge in his or her report the limitations in prediction and limit the opinion to a risk estimate, noting which risk factors are present. It is often helpful to couch one's opinion in terms of a comparison to some group, such as youth of the same age and gender, youth in the same detention center, etc.

Management

We have come a long way from the 1970s when the predominant thinking was that "nothing works" in dealing with violent youth, although violent behavior remains a challenge to treat. Since violence is the product of multiple factors, the most effective treatments utilize several modalities aimed at different sources of dysfunction. These modalities vary widely depending on the nature of the clinical situation: a 4 year-old who was expelled from preschool for hitting other children will receive different services from the adolescent in Case 1 who has a long history of antisocial behavior.

Acute management of high risk youth

The first priority is protecting others from harm. In some cases this will involve hospitalization. In others, removal from the social situation in which the threat level is high, such as keeping a youth away from school by enrolling in a day treatment program, will suffice.

It is important to reduce access to weapons. Brent et al. (2000) found only a quarter of parents were compliant with recommendations to remove guns from the home when their child was suicidal. The clinician can promote a weighing of risks and benefits involved in carrying a handgun, highlighting the penalties if a minor is caught with a handgun, and follow-up to ascertain if the advice was acted upon. Most youth justify carrying guns for protection and safety, and alternative methods of remaining safe can be discussed. Youth who carry guns and demonstrate intent to use may need civil commitment, or, if control is not possible, the clinician may have a *Tarasoff* duty to protect others, depending on his or her jurisdiction.

On an inpatient unit, acute highly aggressive behavior may need to be controlled. AACAP (2002) has developed practice parameters for these difficult situations which emphasize first utilizing measures to promote a violent youth's self-control and utilizing other less restrictive means whenever possible. When physical restraint is used on children, special attention must be paid to maintaining an unobstructed airway and assuring that patient's lungs are not restricted in the prone position by excess pressure on the patient's back. Staff training is a crucial factor in assuring that seclusion and restraint will be applied in a reasonable manner. On mental health units, aggressive outbursts are usually seen as a manifestation of psychiatric problems. In juvenile detention facilities, however, such outbursts are more typically seen as volitional behavior requiring correctional action under the institution's punishment and use of force policies. In some cases, youth are receiving medication for their aggressive outbursts, and may have prn (as needed) medications ordered for outbursts. It is important for psychiatrists working in such institutions to ensure that such discretionary use is carefully monitored.

Outpatient psychosocial treatment

A wide variety of treatment modalities have been tried, and a significant number are supported by some outcome studies. Most have a strong family and/or parent training component, based on the view that conduct problems and maladaptive aggression are developed and sustained by maladaptive interactions. A review of programs that are well supported by outcome research are listed on the web site *Blueprints* (Center for the Study and Prevention of Violence 2007) and discussed in several reviews (American Academy of Child and Adolescent Psychiatry 1997; Burke, Loeber and Birmaher 2002; Cadoret, Leve and Devor 1997; Connor et al. 2006).

Two programs that have demonstrated efficacy with delinquent adolescents in randomized control trials are Functional Family

Therapy, a short-term (typically 8-15 session) prevention and intervention program that utilizes 2 person teams to meet with the youth, families, and schools (Alexander and University of Colorado Boulder Center for the Study and Prevention of Violence 1998), and Multisystemic Therapy, in which always on-call therapists with low case loads provide community-based multimodal treatment that addresses multiple risk factors and work to empower parents and delinquent adolescents with more adaptive coping skills (Henggeler 1998).

Medication

There is growing consensus that medication should first be used to treat any underlying disorder, such as attention deficit disorder, depression, or bipolar disorder (Connor et al. 2006; Pappadopulos et al. 2003; Schur et al. 2003). One area in which practice varies widely is the extent to which irritability in adolescents is perceived as justifying a diagnosis of possible bipolar disorder and thus the utilization of a mood stabilizer. After treating any underlying disorder, the second step is to utilize psychosocial approaches to manage aggressive behavior, such as cognitive-behavioral treatments, parent management training, and increasing environmental structure. Only after those approaches have failed should medication be considered for the target symptom of aggressive behavior.

In 2006, the FDA approved an indication for risperidone for the symptomatic treatment of irritability in autistic children and adolescents. No medications have demonstrated consistent efficacy in reducing aggression in other conditions. The most widely utilized medications are mood stabilizers and atypical antispsychotics, which appear more effective for impulsive/reactive aggression than for predatory aggression (Connor et al. 2006). Among the mood stabilizers, lithium and divalproex sodium have received the most research support. Among the atypical antipsychotics, risperidone is the best studied, and other antipsychotics have not yet been studied in randomized, placebo-controlled studies, although they are often utilized, especially in juvenile detention settings.

Environmental interventions

Since association with delinquent peers and gangs is so central in adolescent violence, interventions that reduce peer effects or utilize them proactively have proved useful. For example, from 1991 to 1995, Boston averaged 44 street homicides of youth per year. After a community intervention beginning in 1996, that number was reduced by 63% (Kennedy et al. 2001), the so-called "Boston Miracle." While the intervention was multi-pronged, the basic idea was that while in most cases the police did not know the shooter, they did know to which gang the shooter belonged, and law enforcement came down hard on all that gang's members. First, there was a community outreach effort educating gangs to the fact that following a shooting, all gang members of the presumptive shooter's gang would be prosecuted for any offense to the fullest extent possible. Police resources from the city were then concentrated on the area in which the shooter's gang operated. Law enforcement and the judiciary bought into the program, and maximum penalties were then given to that gang's members for any offense, from public drinking to assault. Those who violated probation in any manner, including such probation requirements as going to school, had their probation revoked. Since all of the gang suffered for a shooting, peer pressure rapidly began discouraging shootings.

Other interventions that strive for deterrence have been less successful. For example, following the crime wave of the early 1990's, concern for public safety has led to more punitive approaches towards youth. Following the "adult crime, adult time" mantra, almost all states expanded their criteria for waiving juveniles to adult court (Sickmund 2004). The weight of the evidence now suggests that punishing juveniles as adults increases recidivism (Fagan 1996; McGowan et al. 2007). The American Psychiatric Association (2005) has called for reform of punishing large numbers of adolescents as adults.

Consultation

Aggression and violence in children and adolescents are among the most difficult conditions in child and adolescent

psychiatry to assess and treat. Working with such youth also raises strong countertransference issues, and the imprecision of risk assessment in the context of others' lives being potentially at stake can generate considerable anxiety in the clinician. Many child psychiatrists have little experience with this population, and, given the national shortage of child psychiatrists, much care is provided to adolescents by general psychiatrists and other mental health professionals. In difficult situations where one is uncertain of what to do, it is clinically useful and prudent risk management to remember Jonas Rappeport's advice, "When in doubt, shout!" Obtain consultation from another clinician and document it.

Key points

- The onset of serious violence is typically an adolescent phenomenon. Those whose violence begins in preadolescence have a significantly worse prognosis.
- Serious violent offending is common in high school students, but most do not continue their violent career into adulthood.
- Many risk factors for violence have been identified, but no constellation of risk factors allows for accurate predictions of future dangerousness.
- Effective treatments for violent youth are multimodal and intervene at multiple levels. Most effective treatments include parent interventions. For adolescents, also intervening to change the patient's relationship to a delinquent peer group is important.
- The best established use of psychopharmacology is to treat comorbid psychopathology such as ADHD or a mood disorder. No medications specifically target aggression, but mood stabilizers and atypical antipsychotics are sometimes utilized when available psychosocial treatments have not proved effective.

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