

Commentary: Predicting Aggression in Youth

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Aggression in youth is common and encompasses a wide range of behaviors that vary along such dimensions as direction (toward self or others), degree of action (ideation, verbal threats, or actual assaults), degree of planning (reactive or impulsive, planned or predatory), system level (biological, psychological, or social), and seriousness of intent. Risk factors vary, depending on the range of behavior being predicted and the developmental level of the youth being assessed. The Brief Rating of Aggression by Children and Adolescents (BRACHA) shows promise for assessing the general risk of aggressiveness in a developmentally diverse child and adolescent inpatient population. Further research may show whether patterns of risk factors also have treatment and prognostic implications that will aid in working with this population.

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Accurate prediction of an individual's dangerousness remains a holy grail in forensic psychiatry. Since accurate predictions are not currently possible in most cases, the field of dangerousness assessment has focused on risk assessment. Risk assessment aims at delineating the probability that an event will occur. Such probability estimates for populations are useful in developing policies applicable to groups. For example, in developing sentencing policies for juvenile offenders with certain specified risk factors, it is useful to know that group's recidivism rate. When probabilities are applied to individuals, the situation is more complex. Consider a child patient who has certain risk factors and that 40 percent of those in the group of patients with those risk factors will hit another child in the first week of admission to a child psychiatric unit. That does not mean that each child patient from that group has a 40 percent likelihood of hitting someone, but only that the average estimate, assuming there are no other relevant data, is 40 percent. Then, there is the question of whether an estimated risk of 40 percent is sufficient to warrant special intervention, such as admission to a more highly staffed unit. Risk assessment is helpful for risk management, which often includes interventions to

ameliorate dynamic risk factors. Before one can even get to those questions, the risk factors must be identified.

Heterogeneity of Risk Factors

The assessment of risk factors for aggression is difficult, in part, because aggression encompasses a wide range of behavior and can be conceptualized along many different dimensions. These dimensions include direction (toward self or others), degree of action (ideation, verbal threats, and actual assaults), degree of planning (reactive/impulsive to planned/predatory), system level (biological, psychological, and social), and seriousness of intent. On a scale of aggressiveness, how does one compare an actual suicide attempt with thinking about committing armed robbery?

In regard to children and adolescents, this heterogeneity is complicated even more by the youth's level of development, which has strong effects on how aggression is expressed. At 18 months, a high percentage of peer interactions involve aggression, often in reaction to frustration or wanting something another child has. As children develop more social skills and language, physical aggression toward peers decreases until age six, as most children shift to verbal types of aggression. Aggression is common in elementary school children. A longitudinal survey of Canadian children, based on parent ratings, found that over one-third of boys and about 30 percent of

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girls aged 4 to 11 get into many fights, and about one-fifth of boys and one-tenth of girls physically attack people.¹ Seven of the 15 criteria in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)² for conduct disorder (CD) code for physical aggression, and so rates of CD are sometimes used as a proxy for rates of maladaptive aggression in elementary school-aged children. Epidemiologic studies report rates of CD in elementary school-aged boys that range from about three to seven percent,³ with considerably lower rates in girls. Bullying is a common middle school example of aggressive behavior, and a large-scale study found that about 13 percent of 6th to 10th graders had engaged in bullying.⁴

In adolescents, research has focused primarily on actual violence and suicidality, both of which are surprisingly common. The 2003 national Youth Risk Behavior Study survey of high school students found that 33 percent reported being in a physical fight and 8.5 percent had attempted suicide in the previous year.⁵ Adolescent dating violence also occurs with high frequency. In a nationally representative sample of high school students, about nine percent of both girls and boys reported being hit by a boyfriend or girlfriend in the previous year.⁶ Unlike most other forms of violent behavior, dating violence rates were not significantly different for boys and girls. Four longitudinal studies in the United States have shown, by youth self-reports, that by age 17, 30 to 40 percent of boys and 16 to 32 percent of girls have committed a serious violent offense, defined as an aggravated assault, robbery, gang fight, or rape.⁷ Reflecting these high rates, homicide remains the second leading cause of death in 15- to 19-year-olds in the United States, after accidents, and ahead of suicide which is third.

Given the developmental reality that young children are different from adolescents, it is not surprising that risk factors for aggressive behavior also change markedly with developmental level. For example, in the early years, parenting factors are key, whereas for delinquent youth, peer relationships are the most robust predictor. For juvenile offenders, mental health problems turn out to be rather poor predictors of future violence.

Assessing Risk With the BRACHA

In the face of these complexities, in this issue of *The Journal*, Barzman and colleagues⁸ have ambi-

tiously attempted to develop a single, brief measure that will predict aggressiveness in child and adolescent psychiatric inpatients. They define aggressiveness broadly to include danger to self, others, and objects and include threats as well as actions. There are, of course, already many rating scales pertaining to youth violence. The CDC has published a compendium of more than 170 noncopyrighted measures that is also available online,⁹ and there are also copyrighted measures in wide use. However, very few of these measures are oriented toward acute child and adolescent inpatients.

The Brief Rating of Aggression by Children and Adolescents—Preliminary Version (BRACHA 0.8) by Barzman *et al.*⁸ is designed for emergency department staff to rate the youths being admitted to the hospital. In a fairly large sample of 418 children aged 3 to 19 years, rates of aggression in the first six days following admission were fairly high: 29 percent of patients committed an act of aggression, and 15 percent were aggressive toward others. The measure was scored in two ways: giving equal weighting to each item (version 0.7) and using weights derived from a factor-analysis approach (version 0.8). (While for a busy emergency room doctor, giving each item the same weight is simpler to score, the advent of electronic medical records and measures allows for more complex scoring algorithms without increasing the doctor's workload.) Perhaps the most striking finding of the study, given the wide age range of the subjects and the wide range of aggressive behaviors being predicted, is that the BRACHA had a level of predictive power (AUC \approx 0.81 for aggression toward others) similar to that of other measures of risk of violence that are used in more narrowly defined populations to measure the risk of more narrowly defined behaviors. This observation suggests that, despite the heterogeneity of aggressive behavior, developmental factors, and risk factors, there are some underlying commonalities.

A second notable finding was that age alone was almost as good a predictor as combining age with the item response data. The combination produced a five to eight percent increase in predictive power compared with that of age alone, depending on the type of aggression predicted. Younger children were more aggressive, a result that raises interesting questions. Is aggression on inpatient units largely a function of developmental inability to control impulses, despite a highly structured environment? Does it reflect dif-

fering admission patterns for children (more behavior disorders) and adolescents (mood disorders and substance abuse)? One hopes that future research will provide further illumination.

Interventions

As the study emphasizes, the utility of a valid and reliable scale to predict aggression on inpatient child and adolescent psychiatric units would allow clinicians to implement preventive measures in the treatment plan. Examples of such measures would be the use of as-needed medications before a patient escalates to an act of aggression, placing him or her on a unit with appropriate milieu and staffing, or having a higher level of observation assigned to a patient who is likely to become aggressive to self or others. Staff could also focus their efforts on helping the patient to develop coping skills to deal with frustration or fear, instead of having to resort to de-escalating techniques to intervene when an impulsively aggressive act is already in progress. Studies have shown that a comprehensive behavior-management plan leads to a decrease in aggressive acts on inpatient units. Another benefit would be that, as risk of harm to other patients and staff decreases, the unit becomes safer. Preventing aggression would reduce the use of seclusion, restraint, and the administration of emergency medications, all of which carry their own risks of harm and side effects for the patient.

As a process, risk assessment gives not only an assessment of overall risk with the implications for general management noted herein, but it may also point toward areas to target for intervention. For example, if a risk assessment identifies trouble with authority as a risk factor in a particular patient, it may guide the clinician toward interventions that would not be useful for another patient who has the same overall risk score but does not have that particular risk factor. The BRACHA included both static and dynamic factors in the 16 items that were ultimately

chosen for the instrument. The static factors were historical: previous psychiatric hospitalization, school suspensions, and expulsions. Most factors on the BRACHA are static. One cannot change those factors, but dynamic risk factors that are also included in the scale, such as current impulsivity, intrusiveness, and trouble accepting authority, may point toward specific treatments. Further research may illuminate whether different risk factor patterns have treatment and prognostic implications in working with the challenging aggressive child and adolescent psychiatric inpatient.

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