

## Aggression in Schizophrenia

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Acts of aggression committed by patients with schizophrenia is a major public health concern affecting patients, their families, treating clinicians as well as the community at large. In the At Issue section of this issue of the *Bulletin*, Fuller Torrey<sup>1</sup> examines stigmatization of the mentally ill at it relates to aggression, taking issue with gaps in the nation's mental health system that fails to adequately treat schizophrenia patients which in turn increases violence risk.<sup>1</sup> Failure to treat is in fact a major predictor of aggression in patients living in the community. The public perception of the dangerousness of psychiatric patients is insidious and stigma associated with schizophrenia, according to Torrey,<sup>1</sup> is one of the most significant obstacles today in mental health treatment.<sup>1</sup> The failure to adequately address aggression committed by patients with severe and persistent mental illness has also caused families of patients and those who work with the mentally ill to call for more understanding of the illness and new methods of prediction, treatment, and prevention. These concerns also give rise to the need for research devoted to an overall better understanding and treatment of aggression in schizophrenia. It also provides the rationale for this special issue of the *Bulletin*. Experts in the field examine risk assessment, predictors, causes as well as treatment approaches to aggression in schizophrenia in order to reduce the severity and frequency of aggression and with the hope of future prevention.

Several methodological issues, however, have led to mixed results and have confounded efforts to reach these goals. One issue is the confusion and lack of clear operational definitions of the various terms used by different researchers to define violence.<sup>2</sup> That is, the terms used in the literature encompass a wide variety of potential behavioral responses and do not elucidate the observable and identifiable indicators of each construct. For example, the terms violence, aggression, anger, dangerousness, violent crime, and hostility have sometimes been used

interchangeably in the literature, without regard for divergence in operational definitions (see table 1 for some common definitions of these overlapping constructs). Moreover, some researchers employ a broad definition in their studies to include any form of aggressive behavior (eg, irritability, verbal aggression, object aggression, self-aggression, physical aggression), while others restrict their study to patients committing physical acts of aggression against others. The World Health Organization (WHO) goes beyond convention in their definition of violence to include a broad range of behaviors and consequences not usually considered by schizophrenia researchers. In their definition, for example, the WHO group includes acts of omissions or commission such as infliction of “psychological harm” or violent acts resulting in “deprivation” or “maldevelopment” of another person.<sup>3</sup> Consequently, greater specification and agreement of terms within the field will need to occur in order to advance our understanding of causes and develop effective treatment interventions for patients with schizophrenia who commit acts of aggression.

Along these lines, contributors Singh et al<sup>4</sup> undertook a systematic review on structured violence risk assessment tools in individuals with schizophrenia, identifying 10 risk assessment tools designed to predict community violence in psychiatric patients. These authors found thin evidence for the predictive validity of violence risk assessment instruments in schizophrenia due to the large variation in item content between the instruments that various researchers used to compose their definitions of violence.

Another issue that may lead to inconclusive or conflicting findings, pointed out by contributors Volavka and Citrome<sup>5</sup> is that aggressive behavior in schizophrenia is heterogeneous in origin. Aggression, for example, may be the result of a psychotic misperception, an impulsive act, or a calculated behavior to intimidate others. Studies examining causes, predictors, and treatment need to separate schizophrenia patients for study based on primary motivation for aggressive behavior. Similarly, contributors

**Table 1.** Various Terminology Used in Aggression and Violence Research

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- *Aggression*—A disposition, a willingness to inflict harm, regardless of whether this is behaviorally expressed and physical harm is sustained
  - *Physical aggression*—Motor behaviors that take physical form in motor action in order to physically harm others. Requires deliberate intention and is not accidental
  - *Verbal aggression*—Verbal abuse or threats
  - *Violence*—Use of physical force which is intended to hurt or injure another person
  - *Dangerousness*—High risk for imminent physical aggression
  - *Anger*—Negative internal feeling state associated with specific cognitive and perceptual distortions
  - *Hostility*—General dislike and negativity toward others over a range of situations
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Buckley et al<sup>6</sup> note that the multifactorial etiology for various types of aggressive behavior is a significant complication for the clinician's pharmacological treatment choices. A greater understanding of the various motivating factors for aggression will have a wide-ranging impact on our understanding of the etiology as well as prediction and treatment of individuals with aggression and schizophrenic illness.

Some strides have been made in recent years and the field is developing some consensus for a greater understanding of the causal mechanisms as well as for greater predictors and treatment options for schizophrenia patients who commit acts of aggression.

In terms of prediction, many factors have been closely identified with increased aggression risk in schizophrenia patients. Volavka and Citrome<sup>5</sup> review the various predictors of aggression in schizophrenia starting with developmental and prenatal factors as well emphasizing the importance of comorbid substance abuse, psychosis, and comorbid personality disorders as they relate to treatment. Relatedly, Singh et al<sup>4</sup> review the various neurocognitive factors, including executive functioning deficits, that are closely linked to aggression in schizophrenia. Understanding the developmental causal pathways and historical trajectories that lead to aggressive behavior will aide in prediction and enhance treatment aimed at reducing aggression.

In terms of our biological understanding, Michael Soyka<sup>7</sup> points out that no single neurobiological theory gained enough support to explain aggressive behavior in schizophrenia. It is suggested that genes relevant for dopaminergic or serotonergic neurotransmission appear to be likely candidates associated with aggression. Additionally, neuroimaging studies reviewed were mixed but overall, Soyka<sup>7</sup> concluded that deficits in the orbitofrontal and temporal cortex may be significant in the neurological underpinnings of aggression.

Lastly, Buckley et al<sup>6</sup> examined the challenges of managing patients with schizophrenia who commit aggressive acts. According to the authors, effective treatment planning includes both short-term management of agitation as well as long-term strategies aimed at reducing the frequency and severity of future acts. From the authors' review of the evidence, antipsychotic medications remain the treatment of choice for aggression in schizophrenia. There is little evidence to suggest that augmentation with benzodiazepines or anti-epileptic medications show an enhancement of antiaggressive effects. The authors also provide compelling evidence that clozapine has selective antiaggressive properties. They conclude that clozapine remains a treatment of choice for the management of persistent aggression in individuals with schizophrenia provided that patients are treatment compliant and motivated for follow-up to monitor for potential side effects. Buckley et al<sup>6</sup> note that the use of long-acting injectable formulations of antipsychotics and/or complex polypharmacy are often of value when patients are treatment noncompliant.

While it is clear that causes, prediction, and management of aggression have become better elucidated over the years, more research is needed. Moreover, existing research efforts appear to focus more on prediction of aggression and too few on treatment and prevention with regard to underlying causes and mediating variables.

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