

Alan R. Felthous,^{1,*} M.D.; Doris Weaver,^{1,*} Ph.D.; Roy Evans,^{1,*} L.C.S.W.; Shukry Braik,^{1,†} Ed.D.; Matthew S. Stanford,² Ph.D.; Richard Johnson,^{1,*} Ph.D.; Carole Metzger,^{1,*} L.C.S.W.; Anita Bazile,³ Ph.D.; and Ernest Barratt,^{4,†} Ph.D.

Assessment of Impulsive Aggression in Patients with Severe Mental Disorders and Demonstrated Violence: Inter-Rater Reliability of Rating Instrument

ABSTRACT: Measurements of impulsive and premeditated aggression, developed recently, have been applied to prison and outpatient populations without severe mental disorders. Comparable measures of impulsive and premeditated aggression have not been developed for populations with a severe mental disorder. A practical difficulty is that seriously disturbed, thought-disordered patients are incapable of providing reliable historical information. The investigators adapted the Barratt-Stanford instrument for differentiating impulsive from premeditated aggression so that instead of serving as an interview schedule, it could be used to assess aggression from previously documented written descriptions. The study found that the majority of ratable patients showed predominantly impulsive aggression, and after omitting four weak items, the inter-rater reliability for the determination of impulsive aggression was good ($k = 0.53$). Far fewer of the patients were determined to have shown predominantly premeditated aggression (from 14.2% to 15.5%) and the inter-rater reliability for premeditated aggression was deemed fair ($k = 0.33$).

KEYWORDS: forensic science, episodic dyscontrol, impulsive aggression, intermittent explosive disorder, inter-rater reliability, mental illness, premeditated aggression

Behavioral scientists and mental health professionals have long recognized that many acts of violence are impulsive and related to poor control over aggressive impulses. As early as 1954 Karl Menninger (1) proposed a number of disorders characterized by “regulatory devices of the third quarter” or “episodic dyscontrol.” One of these disturbances was manifested by assaultive violence. Menninger envisioned failing psychological defenses resulting in loss of control of primitive dangerous impulses, a mechanism he termed “ego rupture.” When ego rupture occurred intermittently, Menninger termed the phenomenon “episodic dyscontrol,” a disorder that included assaultive violence as one of five subtypes. In the Second Edition of the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (2) the diagnosis of “explosive personality” was introduced. The diagnostic concept of episodic dyscontrol was further developed by Russell Monroe (3) who defined the concept as “an abrupt single act or short series of acts with a common intention carried through to completion, that is, with either relief of tension or gratification of a special need.” (p. 3). In the Third Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM III, [4]), the concept of aggressive

outbursts that are out of character for the individual was carried over from the earlier term of episodic dyscontrol. Intermittent explosive disorder in the DSM IV (1994, [5]) allowed for the possibility of generalized impulsivity and this was included without change in the DSM-IV-TR (2000, [6]).

Barratt (7) proposed three separate categories of aggressive behavior: (i) impulsive aggression, (ii) premeditated aggression, and (iii) medically related or secondary aggression that is symptomatic of a primary medical disorder including neurological disorders. “Persons who exhibit spontaneous or impulsive aggression act aggressively without using self-control; after they exhibit the aggression, they often feel guilty or sad and vow not to do it again, yet they often do repeat the behavior. These persons are often defined as having a ‘hair trigger’ because they are easily provoked into aggression” (7). Following the five criteria offered by Robbins and Guze (8) for establishing the validity of the diagnostic disorder, (i.e., clinical description, laboratory studies, delineation from other disorders, follow-up studies, and family studies with genetic investigation) Felthous and Barratt (9) concluded that there is ample, convergent evidence to support the validity of impulsive aggression as a disorder. Most encouraging, once this disorder is adequately defined and clinically recognized, it is responsive to treatment. Anticonvulsants have been shown not only to reduce the impulsive aggressive acts but also to simultaneously normalize otherwise abnormal electrophysiological findings in the same individuals (10,11,12).

A number of psychological and psychiatric instruments (see for example the Handbook of Psychiatric Measures, [13]) have been developed to assess anger, aggression, and hostility (e.g., Anger, Irritability, and Assault Questionnaire, Buss-Durkee Hostility Inventory, Overt Aggression Scale [14,15], and State Trait Anger

¹Chester Mental Health Center, 1315 Lehmen Drive, Chester, IL 62233.

²Department of Psychology and Neuroscience, Baylor University, Waco, TX 76798.

³Alton Mental Health Center, 4500 College Avenue, Alton, IL 62002.

⁴The University of Texas Medical Branch, 301 University Blvd., Galveston, TX 77555.

*Present Address: Saint Louis University School of Medicine, St. Louis, MO.

[†]Posthumous.

Received 15 April 2006; and in revised form 5 Nov. 2008; accepted 20 Dec. 2008.

Expression Inventory). Many of these instruments are useful in measuring degree and frequency of aggression, but not impulsive aggression itself. Other instruments attempt to measure impulsivity (e.g., Barratt Impulsiveness Scale, Version 11; Patton et al. [16]) or specific types of impulsive behaviors (Southoak's Gambling Screen [17–19], Massachusetts General Hospital Hairpulling Scale [20], and Psychiatric Institute Trichotillomania Scale [21,22]), but not impulsive aggression.

Only recently have attempts been made to develop instruments that classify aggressive subtypes (23). Stanford and Barratt (24) have developed a three-tier approach for distinguishing predominantly premeditated aggression from predominantly impulsive aggression. It relies on both structured interview and systematic chart review. This approach has been shown to be useful and reliable in measuring and identifying aggression in patients and prisoners, most of whom suffer primarily from impulsive aggression but often in combination with a personality disorder (25,26).

The Barratt/Stanford instrument recognizes distinguishing, contrasting phenomenological descriptions of impulsive and premeditated aggression described in previous writings by Barratt (7), Barratt et al. (10), Stanford (11,12), Felthous (9), and others. Impulsive aggression occurs in an agitated state, is spontaneous, purposeless, and generalized, not limited to a single target. During the impulsive aggressive act the subject does not process mental information efficiently, shows little concern for consequences, and demonstrates loss of behavioral control. The aggressive act serves no practical purpose. In near "mirror" contrast, premeditated aggression is planned, controlled, intended to achieve a goal or obtain something. Premeditated aggression can be secondary to another self-serving criminal act such as robbery, result from group influence, or be directed at individuals with a specific group affiliation or who are blocking the subject's access to a goal. In short, impulsive aggression is "hot blooded" and expressive, whereas premeditated aggression is "cold blooded" and instrumental.

An unstudied population in this regard consists of patients with severe mental disorders and aggressive behavior sufficiently serious that they need to be managed in a maximum security hospital. The descriptor "severe" is used to distinguish disorders with psychotic features and thought disturbance such as schizophrenia and schizoaffective disorders from nonpsychotic mental disorders that are also associated with aggression such as borderline personality disorder, antisocial personality disorder, and intermittent explosive disorder. Their aggressive behaviors are thought to be secondary to their severe mental disorder. In some ways this seems quite specific and evident. Consider for example, the patient who acts violently in response to command hallucinations with congruent delusions. However, often even in this population the aggressive acts appear to be precipitated more by frustration, excitability, or immature desires than to overt psychotic symptoms. The literature suggests that aggressive behavior is more common in mentally ill patients who have also shown signs of alcohol or substance abuse and psychopathy. This is consistent with the existence of both impulsive and premeditated aggression in this population as well. Their impulsive aggression may be better managed if identified early in treatment. Yet severely disturbed patients are especially poor historians, and this frustrates attempts to assess the nature of their aggression beyond simply describing their observed behavior. Thus, there is a need for a reliable rating instrument for violent patients with major mental illness. After modifying the Barratt-Stanford instrument for differentiating impulsive from premeditated violence so that it can be applied to available records with behavioral descriptions, the next step was to establish inter-rater reliability of this modified rating instrument. The aim of the present study was

to demonstrate that, with minor modifications, this instrument was equally reliable in assessing impulsive aggression among patients who had major mental illness and as a result of their disorder and violent behavior, required treatment in a maximum security hospital.

Method

A review of the demographics at Chester Mental Health Center, the maximum security hospital for the State of Illinois, over the past 5 years showed that most of the all-male patients were aged between 18 and 40 years; racial/ethnic distribution was 56% African Americans, 40% Caucasians, and 4% Others. In terms of legal or administrative classification, 69% were forensic patients, and 30% were behavioral management patients. Of the forensic patients, 63% were unfit to stand trial and 7% were not guilty by reason of insanity. Over a recent 1-year period the most common primary diagnosis upon admission was schizophrenia, 46%; followed by other psychotic disorders, 27%; mood disorder, 11%; and all other, 17%.

Subjects for the present study were selected as successive referrals regardless of referral source. Information was gathered on race/ethnicity, age, legal status, origin of referral, and diagnoses. All subjects were males aged between 18 and 40 years.

The adapted Barratt/Stanford Records Review for impulsive/premeditated aggression assessment (not to be confused with the well-known Barratt Impulsivity Scale) was used to collect data from all written documents sent prior to, or in conjunction with, the transfer: the transfer packet, the medical record, and any other records or documents that were included. The rating instrument was an adapted Records Review for impulsive/premeditated aggression assessment, which consisted of seven items on impulsive aggression and eight items on premeditated aggression (see Appendix A). The process of adapting the instrument was simple and the resultant instrument was nearly identical to the original. Essentially, the only changes were minor linguistic modifications to several items so they could be applied for data collection through document review rather than through interview. The substantive meaning of each parameter remained unchanged. Based on this data an attempt was made to categorize the aggression of each subject as predominantly impulsive or predominantly premeditated. It was anticipated that some cases would not be ratable due to insufficient information.

This study was approved by the Springfield Committee on Research on Individual Human Subjects (the Internal Review Board for the Southern Illinois University School of Medicine), the Human Rights Committee of Chester Mental Health Center, and the Forensic Research Review Board for the Office of Mental Health, Illinois Department of Human Services.

Results

Successive admissions over the study period ($n = 250$) were reviewed for sufficiently detailed descriptions of personal violent acts to be rated. Of the 250 reviewed admissions, 97 were ratable and were rated. Of these, 84 (87%) were predominantly impulsively aggressive (IA) and 13 (13%), predominantly premeditatedly aggressive (PA). Two raters agreed on 85% of the cases ($n = 82$). The inter-rater reliability for determinations of IA was moderately good ($k = 0.50$) whereas that for PA was only slight ($k = 0.18$), for an overall moderate agreement ($k = 0.42$). Further analysis of the data demonstrated that four items in particular were not useful, because they were virtually never endorsed or were

psychometrically weak. After eliminating these four items and recalculating the scores, agreement was slightly better for PA ($k = 0.33$) with no significant change in inter-rater reliability for IA ($k = 0.53$) or overall agreement ($k = 0.40$).

The aim of this study was simply to determine the inter-rater reliability of the modified Barratt-Stanford instrument in assessing impulsive and premeditated aggression among behaviorally disturbed inpatients with major mental illness. This was considered a necessary first step, before embarking on a more ambitious and meaningful investigation of the nature of physical aggression in behaviorally disordered inpatients who suffered from schizophrenia. The next study would then apply the same instrument to recent admissions, as carried out in this study, to determine whether a recent act of aggression was predominantly impulsive or premeditated. Second, a second act of aggression, once it occurred within the hospital, would be assessed using the unmodified, original Barratt-Stanford instrument. Finally, this study would require research methodology in the diagnosis of schizophrenia, such as by administering the SCID. Because this protocol would require nonroutine methods of evaluating patients directly, informed consent would be required of subjects to participate and this would create selection bias.

As expected the vast majority of aggressive, mentally ill patients whose aggression could be rated, showed predominantly impulsive aggression. Moreover, the less robust inter-rater reliability for premeditated aggression ratings suggest that these patients, too, may have had an element of impulsivity resulting in mixed rather than purely premeditated aggression.

All 97 cases were placed into three broad diagnostic categories: mood, thought, and other. For this grouping mood disorders corresponded to disturbances in mood and affect including bipolar and depressive disorders. Thought disorders included conditions with pronounced disturbances in form or content of thought such as schizophrenic, schizo-affective, and delusional disorders. The third category, "other" consisted of disorders not considered primarily disturbances of thought or mood and included substance abuse and personality disorders. Of the impulsively aggressive subjects, 15 had a mood disorder; 55, a thought disorder; and 14, some other disorder. All but one of the subjects with predominantly premeditated aggression had a thought disorder, the single exception having a mood disorder. Chi-squared analysis showed a significant between-groups difference ($\chi^2 = 5.962, p = 0.05$).

Discussion

When the adapted Barratt/Stanford Records Review for Impulsive Premeditated Aggression Assessment was used to rate aggression in mentally ill patients, requiring maximum security hospitalization, moderately good inter-rater reliability was demonstrated. The results of this study sufficiently confirmed the potential utility of applying this instrument to provide a more systematic and objective assessment of aggression in patients with mental illness than clinical impression alone could accomplish.

Results further confirmed that when impulsive and premeditated aggression was distinguished in mentally ill patients, the vast majority of patients showed predominantly impulsive aggression. Interestingly, however, among the minority with predominantly premeditated aggression, almost all (97.4%) suffered from a thought disorder. Of those with a thought disorder ($n = 67$), nearly one in five had predominantly premeditated aggression, a much higher ratio than in all other disorders combined. One might reasonably

ask whether suspicious, paranoid, or otherwise delusional thinking contributed to the thought-disordered patients' potential to assault with premeditation.

Unfortunately, the packets for the majority (65%) of transferred patients to Chester Mental Health Center lacked documents with sufficiently detailed description of the violent act for the instrument to be applied. This could have created selection bias. Those not included were not studied; however, investigators examined available materials on all admissions and arrived at the following impressions: (i) for many there was no evidence of recent physical aggression or the aggressive act was too minor to be included. The judgment to transfer to the maximum security hospital was not invariably based on an aggressive act. Some were deemed escape risks and, much more often, other forensic inpatient facilities were at full capacity. The exclusion of subjects without recent personal violence was necessary for the study. (ii) Other patients were clearly aggressive, but no one had provided a sufficiently detailed description of any one aggressive act to be rated. Raters and hospital clinicians, in general, must rely on the information provided. Even without research in progress, a complete description of a violent act that occasioned transfer to a maximum security hospital assisted clinicians in assessing and preventing violence from the very beginning of a patient's admission. We suspected that insufficient descriptions of violent acts were common among transfers to security hospitals throughout the country. More favorably viewed, the present study was not plagued with the most common selection bias caused by the need for informed consent when more was done to the patient than the usual admission and assessment procedure.

A limitation of this study was the application of the instrument to a single assaultive act. A given individual may be capable of assaulting impulsively or premeditatedly. Whether a person was predominantly impulsively aggressive would be more accurately determined by rating several discrete assaultive acts. In practice, however, thorough written descriptions of aggressive acts were not plentiful, even in the records of individuals known to be recurrently violent.

Diagnoses were not established by a consistent research protocol, but were simply the diagnoses with which the patient was admitted to the hospital. Although this too was a limitation of the study, because all patients underwent the same rating for aggression, and could, therefore, be included in the study if information about an aggressive act were sufficient, those studied were not subject to the selection bias that would have occurred from a rigorous and uniform diagnostic procedure requiring consent.

Much of the aggression shown by mentally ill patients was undoubtedly medically related or secondary, and, therefore, the aggression would subside as the symptoms of mental illness in general responded to treatment. Even if the aggression is secondary, this study suggests the possibility that it may, nonetheless, be classifiable as predominantly impulsive or premeditated. The hope is that a more rigorous classification of the nature of aggression in mentally ill patients will eventually lead to more specific treatment and management techniques that are, in fact, grounded in evidence-based medicine, diagnosis, and therapeutics.

Acknowledgments

Many thanks to Janet Jacobs for her invaluable assistance in providing preliminary demographic information. Gratitude is also expressed to Barbara Wagner for assistance with data collection.

References

1. Menninger K. Regulatory devices of the ego under major stress. *Int J Psychoanal* 1954;35(1):412–20.
2. American Psychiatric Association. *Diagnostic & statistical manual of mental disorders*, 2nd edn. Washington, DC: American Psychiatric Association, 1968.
3. Monroe RR. *Episodic behavioral disorders: a psychodynamic and neurophysiological analysis*. A Commonwealth Fund Book. Cambridge, MA: Harvard University Press, 1970.
4. American Psychiatric Association. *Diagnostic & statistical manual of mental disorders*, 3rd rev. edn. Washington, DC: American Psychiatric Association, 1987.
5. American Psychiatric Association. *Diagnostic & statistical manual of mental disorders*, 4th edn. Washington, DC: American Psychiatric Association, 1994.
6. American Psychiatric Association. *Diagnostic & statistical manual of mental disorders*, 4th edn (text rev). Washington, DC: American Psychiatric Association, 2000.
7. Barratt ES. Measuring and predicting aggression within the context personality theory. *J Neuropsychiatry* 1991;3(2):535–9.
8. Robbins E, Guze SB. Establishment of diagnostic validity in psychiatric illness. *Am J Psychiatry* 1970;126:107–11.
9. Felthous AR, Barratt ES. Impulsive aggression. In: Coccaro EF, editor. *Aggression: psychiatric assessment and treatment*. New York, NY: Marcel Dekker, 2003;123–48.
10. Barratt ES, Kent TA, Bryant SG, Felthous AR. A controlled trial of phenytoin and impulsive aggression. *J Psychopharmacol* 1997;11:388–9.
11. Stanford MS, Houston RJ, Matthias CW, Greve KW, Villemarette-Pittman NR, Adams D. A double blind placebo controlled crossover study of phenytoin in individuals with impulsive aggression. *Psychiatry Res* 2001;103:193–203.
12. Stanford MS, Helfritz LE, Conklin SM, Villemarette-Pittman NR, Greve KW, Adams D, et al. A comparison of anticonvulsants in the treatment of impulsive aggression. *Exp Clin Psychopharmacol* 2005;13(1):72–7.
13. American Psychiatric Association. *Handbook of psychiatric measures by the task force for the handbook of psychiatric measures*. Washington, DC: American Psychiatric Association, 2000.
14. Yudofsky SC, Silver JM, Jackson W, Endicott J, Williams D. The overt aggression scale for the objective rating of verbal and physical aggression. *Am J Psychiatry* 1986;143:35–9.

15. Silver JM, Yudofsky SC. The overt aggression scale: overview and guiding principles. *J Neuropsychiatry* 1991;3(2):S22–9.
16. Patton JH, Sanford MS, Barratt ES. Factor structure of the Barratt Impulsiveness Scale. *J Clin Psychol* 1995;51:768–74.
17. Lesieur HR, Blum SB. The southoaks gambling screen (SOGS): a new instrument for the identification of pathological gamblers. *Am J Psychiatry* 1987;144:1184–8.
18. Lesieur HR, Heyman M. Pathological gambling among youthful multiple substance abusers in a therapeutic community. *Br J Addiction* 1988;83:765–71.
19. Lesieur HR, Blum SB. Revising the southoaks gambling screen in different settings. *J Gambl Stud* 1993;9:213–23.
20. O’Sullivan RL, Keuthen NJ, Heyday CF, Ricciardi JN, Buttolph ML, Jenike MA, et al. The Massachusetts General Hospital (MGH) hairpulling scale, 2: reliability and validity. *Psychother Psychosom* 1995;64:146–8.
21. Winchel RM, Jones JS, Molcho A, Parsons B, Stanley B, Stanley M. The Psychiatric Institute trichotillomania scale (PITS). *Psychopharmacol Bull* 1992;28(4):463–76.
22. Winchel RM, Jones JS, Molcho A, Parsons B, Stanley B, Stanley M. Rating the severity of trichotillomania: methods and problems. *Psychopharmacol Bull* 1992;28(4):457–62.
23. Stanford MS, Houston RJ, Mathias CW, Villemarette-Pittman NR, Helfritz LE, Conklin SM. Characterizing aggressive behavior. *Assessment* 2003;10:183–90.
24. Stanford MS, Barratt ES. Impulsivity and multi-impulsive personality disorder. *Pers Individ Dif* 1992;13(7):831–4.
25. Barratt ES, Stanford MS, Kent TA, Felthous AR. Neuropsychological and cognitive psychophysiological substrates of impulsive aggression. *Biol Psychiatry* 1997;41:1045–61.
26. Stanford MS, Houston RJ, Villemarette-Pittman NR, Greve KW. Premeditated aggression: clinical assessment and cognitive psychophysiology. *Pers Individ Dif* 2003;34:773–81.

Additional information and reprint requests:
 Alan R. Felthous, M.D.
 Forensic Psychiatry Division
 Saint Louis University School of Medicine
 1438 South Grand
 St. Louis, MO 63104-1027
 E-mail: felthous@slu.edu

Appendix A

Adapted Barratt/Stanford Records Review for Impulsive/Premeditated Aggression Assessments

Characteristics of a premeditated aggressive act (not all are necessary for classification):

1. Was the target the focus of a planned act? Yes_____ No_____
 2. Was the aggression part of a secondary contingency plan related to another antisocial act (e.g., committing a murder while in the act of robbing or burglarizing a residence)? Yes_____ No_____
 3. Was the aggressor influenced by group pressure to commit the act (e.g., gang member)? Yes_____ No_____
 4. Was the motivation for the target selection related to group affiliation (e.g., class, race, religion, or other similar characteristics)? Yes_____ No_____
 5. Was the target blocking the path to a goal? Yes_____ No_____
 6. Was the aggressive act instrumental toward achieving a social goal? Yes_____ No_____
 7. Did the aggressor appear to be in control of his/her behavior? Yes_____ No_____
- Predominantly premeditated? Yes_____ No_____

Characteristics of an impulsive aggressive act (not all are necessary for classification):

1. Was the aggressor in an agitated state (i.e., definitely different than the aggressor’s mood preceding perception of the “provoking” stimulus)? Yes_____ No_____
2. Was the act a “hair-trigger” response (i.e., acting without thinking; spontaneous)? Yes_____ No_____

3. Was there no apparent motive that would focus the aggressor's attention on the target prior to the act (i.e., aggression lacked purpose)? Yes _____ No _____
 4. Was there inefficient processing of information during the agitated state (i.e., behavior including oral responses did not lead to a rational solution of the problem; the aggressor ignored the target's comments)? Yes _____ No _____
 5. During the aggressive act, did the aggressor lack concern about the consequences of his/her actions (i.e., not concerned about punishment or possible self injury)? Yes _____ No _____
 6. Did the aggressor lose control of his/her behavior (i.e., the degree of aggressiveness expressed during the act was grossly out of proportion to the precipitating psychosocial stressor)? Yes _____ No _____
 7. Was no secondary gain obvious? Yes _____ No _____
 8. Was the aggressive behavior generalized in nature, occurring in multiple situations with varying targets? Yes _____ No _____
- Predominantly impulsive? Yes _____ No _____
- Overall assessment: Predominantly: Impulsive? _____ or Premeditated? _____