Characteristics of Assaultive Behavior Among Psychiatric Inpatients

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Objective: **The purpose of this study was to assess the extent to which psychosis, disordered impulse control, and psychopathy contribute to assaults among psychiatric inpatients.** _Methods:_ **The authors used a semistructured interview to elicit reasons for assaults from assailants and their victims on an inpatient research ward. Video monitoring provided supplemental information to confirm participants' identities and activities before and during the assault.** _Results:_ **Consensus clinical ratings indicated that approximately 20 percent of the assaults in this sample were directly related to positive psychotic symptoms. Factor analysis revealed two psychosis-related factors, one related to positive psychotic symptoms and the other to psychotic confusion and disorganization, as well as a third factor that differentiated impulsive from psychopathic assaults.** _Conclusions:_ **Information obtained from interviews with assailants can reveal the underlying causes of specific assaults. This information is potentially useful in the selection of rational antiaggressive treatment strategies.** (**_Psychiatric Services_ 54:1012–1016, 2003**)

The literature on violence and mental illness treats assaultive behavior as a unitary phenomenon. However, progress toward more rational development and selection of antiaggressive treatments will entail better understanding of the heterogeneous origins of violence. Only a few studies have attempted to identify the causes of specific acts. Taylor (1) retrospectively interviewed psychotic prisoners about their mental state at the time of their index offense and found that 20 to 26 percent of the prisoners were driven to offend by psychotic symptoms.

In another study that focused on individual assaults, assailants and staff were asked for their perceived reasons for the assaults (2). Staff usually said that the assault occurred after the assailant was ordered to do something, whereas assailants in most cases said that they had been "teased or bugged" or "provoked by staff." Crowner and colleagues (3) used video cameras to detect assaults on an intensive ward for violent psychiatric patients and then interviewed assailants about why the assaults had occurred. The assailants frequently denied or minimized the assault and often reported provocation by the victim. These researchers did not evaluate assailants' mental state at the time of the assaults.

Schizophrenia (4,5) and, more generally, psychotic symptoms—particularly paranoid delusions (1,6) and command hallucinations (5,6)—have been associated with a history of assaults. However, retrospective collection and aggregation of assault data impede efforts to establish causal or even temporal connections. Psychopathy is a predictor of violence among nonpsychotic persons and among those with major mental disorders (7), and comorbid psychopathy is elevated among violent patients with schizophrenia (8). Disordered impulse control, a pivotal concept in the pathogenesis of aggression (9), has not, as far as we know, been systematically investigated in relation to violence among persons with mental illness.

Studies of underlying biological and psychological correlates of assaultiveness have not focused on specific events, whereas studies of assaults have not related their results to theoretical causal factors. In this study we hypothesized a priori that three separable factors underlie individual assaults: psychosis, psychopathy, and impulsiveness.

Methods

We constructed an interview-based measure to establish whether there was a temporal and causal relationship between psychotic symptoms and assaults—that is, whether assaults occurred when assailants were experiencing hallucinations or delu-

sions—and to investigate the contributions of psychopathy and poor impulse control to the assaults. We expected that aggression motivated by psychopathy would be associated with planning of the assaults, predatory gain, and lack of remorse. We also expected that assailants who were motivated by psychopathy might minimize or deny their own role in the event or the consequences to the victim. Aggression related to disordered impulse control was expected to have an immediate environmental stimulus—an order to do something, denial of a request, or some other immediate provocation by the victim. Advance planning of assaults would eliminate poor impulse control as a causative factor.

Scale description

The Assault Interview Checklist was constructed to elicit information about the underlying cause of assaults. The interview items and the key features for "pure" events are listed in Table 1. For example, hallucinations, delusions, or psychotic misinterpretation might be an indication that an assault was motivated by psychosis. However, individual assaults would not necessarily have a single cause; multiple features could be present simultaneously.

Items 6 through 8 all involve some action by the victim. Item 6, "provoked by the victim," implies some intentional provocation, such as teasing or threatening. Item 7, "ordered to do something," pertains to circumstances in which the victim issued an order, such as "Take a shower," or made a demand, such as "Give me a cigarette," before the assault. Item 8, "request refused," applies to cases in which the assailant is angered by the victim's failure to fulfill his or her request.

Assessment procedures

Assailants, victims, and witnesses were interviewed as soon as possible after an assault. The interviews were semistructured, beginning with open-ended questions intended to elicit the informant's account of the events. For each informant interviewed, each item on the checklist was marked as either present, absent, or questionable on the basis of the informant's responses. The interviewers and raters were experienced clinicians (psychiatrists and psychologists).

Setting

The study took place at the Rockland Psychiatric Center (RPC), and most of the interviews were conducted at the clinical research and evaluation facility at the Nathan S. Kline Institute for Psychiatric Research, located on the RPC campus. One of the wards on this research unit is dedicated to the care and study of aggressive patients. Unit staff receive special training and provide psychosocial interventions, such as anger management groups. Patients are recruited from the regular wards at RPC to participate in clinical trials of antiaggressive medications or are referred for intensive evaluation. All transferees provide written informed consent as approved by the institutional review board of the Nathan S. Kline Institute and RPC. The study was conducted between April 1999 and January 2002.

A nine-camera audiovideo system continuously records activity in the public areas of this ward. Because of the noisy ward environment, normal conversation cannot usually be understood on the tape, but it is possible to hear and occasionally understand raised voices. Although videos can provide an accurate record of physical actions preceding and during an assault, they provide little information about the assailant's mental state or interpretations of events. For the purposes of this study, we used the videotapes primarily to detect and verify assaults, to confirm the identities of assailants and victims, and to detect whether victims provoked the assaults.

Quantitative methods

Descriptive analyses examined the frequency of endorsement of interview items. Individual items were considered present, possibly present, or absent if so marked by all raters. When raters disagreed over the rating of an item, individual ratings and supporting interview transcripts were examined to determine the resolution.

Interview transcripts were reviewed to classify assaults as either psychotic or nonpsychotic in motivation on clinical grounds.

Factor analysis of interview data was performed to examine whether the underlying structure was consistent with the three hypothesized factors. Consensus ratings were recoded to numeric values for the factor analysis: 0 for absent, .5 for possible, and 1 for present. The factor structure was

Table 1

Items on the Assault Interview Checklist and study hypotheses

	Hypothesized motivating factor[a]		
Item	Psychosis	Disordered impulse control	Psychopathy
1. Acting on hallucination	+		
2. Acting on delusion	+		
3. Psychotic misinterpretation	+		
4. Planned		–	+
5. Predatory gain		–	+
6. Provoked by the victim		+	
7. Ordered to do something		+	
8. Request refused		+	
9. Remorse		+	–
10. Amnesia		+	
11. Partial denial[b]			

[a] The plus and minus symbols reflect hypotheses regarding the motivating factors; + indicates that the feature was more likely to be present, and – indicates that the feature was less likely be present. No a priori assumptions were made about the co-occurrence of items not labeled either + or – for a given factor, and not all the items marked + for a given motivating factor were expected to be present for a single assault.

[b] Partial denial was added to the original interview checklist; there was no hypothesis regarding its association with the hypothetical motivating factors.

Consensus ratings of assailant interviews for 70 assaults

Characteristic	Absent	Possibly present	Present	Data missing
Hallucinating	46	10	5	9
Delusional	40	12	9	9
Psychotic misinterpretation	47	12	2	9
Planned	49	6	5	10
Predatory gain	58	1	1	10
Provoked by the victim	17	8	36	9
Request refused	54	2	4	10
Ordered to do something	54	3	4	9
Remorse	34	5	23	8
Amnesia	51	3	8	8
Partial denial	45	2	13	10

evaluated with respect to clinical ratings of psychotic motivation and interview transcripts.

Results

Interviews were attempted for 70 assaults. Most interviews were completed within 24 hours of the assault, and 90 percent were completed within two days. Usually, one person conducted the interview in the presence of one or two additional raters, each of whom rated the respondents' answers independently.

Characteristics of assailants and victims

The 70 assaults involved 43 individual assailants and 36 nonstaff victims; staff members were victims in ten incidents. Most patients who were interviewed had a chart diagnosis of either schizophrenia (39 patients) or schizoaffective disorder (31 patients). Schizophrenia was the most frequent diagnosis among male assailants (18 of 28 patients) and male victims (19 of 27 patients). Schizoaffective disorder predominated among female assailants (11 of 15 patients) and victims (seven of nine patients). The proportions of African-American, Hispanic, and Caucasian assailants and victims were roughly equivalent.

Most of the assailants (36 assailants, or 84 percent) were receiving treatment in the research unit at the time of the assault, and a majority of these were participating in double-blind clinical trials in which they were randomly assigned to receive typical or atypical antipsychotic medications, with or without concomitant mood stabilizers, such as valproate or nadolol.

Twenty-four individuals acted only as assailants in as many as four events, and 17 individuals were involved only as victims in as many as three events. Nineteen individuals were involved as both assailants and victims (in different events). Individuals in this subgroup were involved in up to eight events; for many of these patients, the roles of assailant and victim were about equally likely, but others were predominantly either an assailant or a victim.

Assailant interviews

A total of 55 assailant interviews yielded usable data, which are summarized in Table 2. Ten incidents were eliminated because the assailant either refused to be interviewed (five incidents) or denied that any assault had occurred (five incidents). Two interviews yielded no information because the assailant claimed to have no memory of the events, and three interviews were unusable because the assailant was too disorganized.

Victim interviews

Victims were interviewed for 65 assaults. The victims were asked mainly to provide information about the events leading up to the assault as well as their perception of the cause of the assault. They were not expected to be able to provide information about the assailants' internal states.

Provocation by the victim was the reason most frequently endorsed by assailants. However, very few victims reported that they had provoked the assault. Responses to the item "provoked by the victim" were available from both the victim and the assailant for 48 incidents; there was relatively little agreement between them (kappa=.24). There were nine videotaped events in which the assailant claimed to have been provoked by a victim who denied having been provocative. Only once was the assailant's claim of having been provoked by the victim confirmed by the videotape. For four assaults, the videotape clearly showed that the victim had not provoked the assailant and supported other indications that the assailant had been psychotic at the time of the assault. In the four remaining incidents, the videotape neither confirmed nor contradicted assailants' claims of subtle provocation by victims, such as staring or laughing at the assailant.

Clinical ratings of the influence of psychosis

To distinguish assaults that were directly motivated by psychotic symptoms from those with other motivations, two raters (the first and last authors) reviewed the narrative reports for each interview. We adopted the criteria used by Taylor (1). We classified an assault as psychotic when both the rater and the assailant considered the assault to be directly driven by delusions or hallucinations. If the assailant was delusional or hallucinating at the time of the assault but could not indicate his or her motives, and the rater thought that psychotic symptoms influenced the assault, the assault was classified as possibly psychotic. Assaults were classified as nonpsychotic only if the interview was sufficiently informative to exclude psychosis—for example, no evidence of delusions or hallucinations as well as some other account of the reason for the assault. Some assaults were classified as uncertain—for example, when no reason for the assault could be deduced from the interview. Twelve interviews were rated jointly to establish the criteria; the remainder were rated independently. Interrater agreement was moderate for the four-way classification scheme described above (kappa=.611, p<.005).

To obtain a dichotomous classification of psychotic versus nonpsychotic,

we combined the "psychotic" and "possibly psychotic" categories and the "nonpsychotic" and "uncertain" categories. Interrater agreement was only slightly higher under this classification (kappa =.645, p<.005), and the disagreements were resolved by consensus. Using these methods, we classified 11 (20 percent) of the 55 assaults as psychotic and 44 (80 percent) as nonpsychotic. Six of the nine assailants who were responsible for at least two assaults engaged exclusively or mainly (four of six events) in nonpsychotic assaults, and one assailant engaged primarily in psychotic assaults (three of four events).

Factor analysis of assailant interviews

Interview ratings were numerically recoded as described above. Items that were infrequently endorsed were combined with similar items, such that if either item was endorsed the derived item was scored 1. Thus, the interview items "request refused" and "ordered to do something" were combined with "provoked by the victim" to derive a single provocation item. "Predatory gain" was combined with "planned." Polychoric correlations were calculated for every pair of items, and the resulting correlation matrix served as input for factor analysis. Three factors were retained and subjected to varimax rotation. The rotated factor pattern is shown in Table 3.

These three factors combined explained approximately 70 percent of the total variance. The three interview items related to psychotic symptoms have high loadings on factor 1. Events that were clinically classified as psychotic had significantly higher scores on factor 1 than those classified as nonpsychotic (mean±SD scores of 2.89±1.96 and −.82±1.36, respectively; F=52.491, df=1, 54, p< .005). An example of an assault with a high score on factor 1 follows.

The victim, Mr. A, was sitting quietly watching television when the assailant, Mr. B, walked up and punched him hard on the right temple for no apparent reason. When interviewed, Mr. A stated that he had done nothing to provoke Mr. B. Mr. B admitted assaulting Mr. A but maintained that

Mr. A and his family had harassed him, taken away his money, and set him up with a woman who gave him an infection that was somehow connected to Mr. B's being hospitalized for hearing voices.

"Partial denial" and "amnesia" had high loadings on factor 2. Events with the highest scores on factor 2 are characterized by the assailant's inability to provide a reason for the assault, uncertainty about the details of the assault, or lack of recall of the event itself, as in the following example. Ms. C reportedly grabbed and tore the shirt of a staff member. When interviewed, Ms. C admitted to the assault but had no clear recollection of what happened. She stated that she gets agitated, mostly during the morning hours, for no apparent reason. She said that during these times she has continuous, overwhelming thoughts or impulses to hurt herself or others but that these are only "thoughts" and not "voices." Ms. C expressed remorse for her actions. Two individual patients were responsible for eight of the 13 assaults with the highest scores on factor 2.

Factor 3 is bipolar; planning and remorse were the interview items with the highest loadings on factor 3, and their scores have opposite signs. An extreme score on factor 3 is thus associated either with remorse without planning (consistent with poor impulse control) or with planning without remorse (consistent with psychopathy). Assaults with high negative scores on factor 3 included events

that were characterized by planning and no expression of remorse: The victim, Ms. E, had punched the assailant, Ms. D, in the nose the previous night. Ms. E had apologized to Ms. D, and there had been no argument between them. After breakfast, Ms. D called Ms. E over and punched her twice in the jaw. When interviewed, Ms. D said that she felt that she needed to hit back but had not responded the previous evening. She was not sorry about having hit Ms. E—she said she should have hit her harder.

Events with high positive scores on factor 3 were not planned, and in each case the assailant expressed remorse for his or her actions: Mr. F and Mr. G sat opposite each other at lunch. Mr. F was upset because Mr. G had been making funny faces and chewing too fast with his mouth open. As they were going outside after lunch, Mr. F pushed Mr. G out of the way and he fell to the floor. Later, Mr. F apologized to Mr. G.

Other assaults had high scores on more than one factor and multiple contributing causes could be discerned. In the following event, an actively psychotic patient was provoked by a peer. Ms. H reported that she had spit on Mr. I because she was hearing voices and thought that Mr. I was calling her a demon. Mr. I said that Ms. H had called him a demon and that she often accused him of persecuting her. Videotape showed the two patients talking to each other across the courtyard in an unfriendly tone. Mr. I is heard saying "I

Table 3

Factor analysis of assailant interviews

Characteristic	Factor 1	Factor 2	Factor 3
Hallucinating	.918[a]	.117	.111
Delusional	.948[a]	.065	.069
Psychotic misinterpretation	.665[a]	−.375	−.211
Planned	−.068	−.049	−.708[a]
Remorse	−.046	−.075	.811[a]
Provocation[b]	.291	−.377	−.227
Amnesia	.076	.891[a]	.072
Partial denial	−.242	.855[a]	−.325
Percentage of total variance explained	29.2	22.7	17.3

[a] Factor loadings above .5 (positive or negative) are considered to be high.
[b] The interview items "request refused" and "ordered to do something" were combined with "provoked by victim" to derive this single variable.

don't need imaginary friends. I've got real friends." Ms. H moves closer and gestures angrily at Mr. I before spitting a mouthful of liquid onto him.

Discussion and conclusions

Our findings illustrate that it is possible to meaningfully interview assaultive psychiatric inpatients about the reasons for their aggressive actions. The data supported our hypothesis that individual assaults could be driven by psychotic symptoms, psychopathy, or disordered impulse control. Further research will be necessary to evaluate the degree to which a single factor is predominant in causing assaults committed by an individual over time. Nevertheless, the observations reported here have implications for antiaggressive treatments.

Positive psychotic symptoms can directly influence aggressive behavior. In our sample, assailants whose aggression appeared to be motivated by psychosis reported delusions and hallucinations with threatening content more frequently than command hallucinations. Although positive psychotic symptoms accounted for only about 20 percent of the assaults we studied, they deserve attention because of the potential for successful pharmacologic treatment. The implication of this study is that an antipsychotic medication may have a specific antiaggressive effect (10), but the reduction in aggression may be secondary to the elimination of positive or other symptoms.

Our observations suggest that the contribution of psychosis to aggression is not limited to the narrow definition we adopted for classifying events as psychotic or nonpsychotic but also includes consequences of confusion and disorganization. Assailants who were responsible for incidents with high scores on factor 2 could not provide coherent reasons for the assaults and in some cases did not have clear recall of the events. These assaults were not driven by florid positive symptoms, but the assailants' psychosis may have caused them to misunderstand the actions of their victims and respond aggressively. Treatment with atypical antipsychotic medications, which appear to

have ameliorative effects on cognitive symptoms among patients with schizophrenia (11), may aid in the reduction of psychotic confusion-related assaults.

Assaults related to poor impulse control were more heterogeneous. We hypothesized that lack of planning would distinguish impulsive assaults. However, planning was observed very infrequently among these patients. Instead, remorse appears to be the best indicator that an assault may have been caused by the assailant's impulsivity. Loss of impulse control probably rarely occurs without an environmental trigger. However, the triggers vary greatly among individuals and also among events within individuals, making it difficult to identify impulsive assaults.

Antipsychotics, anticonvulsants, and lithium have been used to reduce impulsivity per se (12), but more recently the effectiveness of anticonvulsant medications in reducing impulsive aggression have begun to be explored (13).

Psychopathy, the least treatable of the factors contributing to aggression, does not clearly emerge in these interviews but is suggested by planning and lack of remorse. However, deceitful assailants may easily conceal both of these factors. When psychopathy is suspected, formal assessment using tools such as the Psychopathy Checklist—Revised (14) or the Psychopathy Checklist: Screening Version (15) may be helpful.

Finally, it should be noted that our study used a convenience sample. The demographic composition of the sample was undoubtedly influenced by the fact that most of these patients were transferred to the research unit to participate in studies with specific inclusion and exclusion criteria. Inferences about relationships between race, gender, or diagnosis and violence cannot be made on the basis of these data. ♦

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