

Delusions, Substance Abuse, and Serious Violence

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The objective of the study was to learn how delusions, substance abuse, and violence are related. The sample was 90 hospitalized patients with adequate descriptions of mental status when violent. Data sources were risk assessment based on record review and patient and staff interviews. The data include history of violence and substance abuse, diagnosis, and demographic and legal status. Delusions were definitely or questionably present in 73.3 percent and absent in 26.7 percent of violent episodes; 83.5 percent of delusionally violent patients had a history of substance abuse. These results support the importance of substance abuse in relation to violence by psychiatric patients. Delusions alone were infrequently related to violence, but when present appeared almost always to drive the violent behavior.

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Over the past 15 years, studies on four continents have provided evidence that violence and mental disorder, schizophrenia in particular, are related. The evidence comes from epidemiologic studies, forensic and other patient samples, case register data, and prison samples.^{1–9} Link and Steuve¹⁰ suggested that the relationship between mental disorder and violence is driven by delusional mental status and that delusions of influence and threat control/override are most clearly associated with violence. Delusions of threat involve (persistent and false) beliefs that someone is trying to harm one; control override delusions involve the belief that outside forces are in control of one's mind. Later studies have provided supporting evidence for the role of threat control/override delusions.^{4,10}

Appelbaum *et al.*¹¹ reported data from the MacArthur risk assessment study^{12,13} that appear to contrast with the prior findings linking delusions and violence. In a one-year follow-up study of 1,148 patients discharged from the hospital, they found that delusional mental status was not associated with later violence; threat control/override delusions were negatively associated with later violence; and the most common diagnosis associated with violence was de-

pression. Further, substance abuse was commonly present in association with violence, and after the effect of substance abuse was controlled, those in the patient sample were no more violent than those in a matched community sample.¹²

These data are inconsistent with the major findings in the current literature. Appelbaum *et al.*¹¹ suggested that one explanation for the discrepant findings regarding delusions might be that earlier research had relied on screening questions rather than detailed inquiry in assessing delusions. Monahan¹⁴ commented that many of the earlier studies linking mental disorder and violence failed to assess substance abuse. Taylor¹⁵ observed that it is difficult in retrospect to ascertain delusional mental status at the time of violence, even when forensic evaluations are carried out as recently as six weeks after the violent act.

Literature review suggests that Monahan's critique is accurate. There are relatively few studies that examine delusional mental status when violent, as distinct from studies of diagnosis of psychosis in relation to violence. These latter papers often present multivariate analyses showing that major mental disorders or schizophrenia are associated with violence, even after controlling for comorbid substance abuse.^{2,3,16} However, the few studies that report specifically on delusions typically do not report on how delusions and substance abuse are related.^{17,18}

The paucity of studies of mental status when violent, as well as the apparent contrast between the

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MacArthur group's findings and the earlier research, suggest the need for further research on the relationship among delusions, substance abuse, and violence. The purpose of the present study was to investigate whether violence is associated with delusions independent of a history of substance abuse. Data are reported for a sample of patients hospitalized after serious violence in the community. Mental status at time of violence is rated for delusions and for influence of substances.

Method

Informed consent was not required for this study according to the federal guidelines in force from 1992 to 1996, because all results are based on anonymous aggregated record review data. The several case illustrations are disguised and deindividuated so that the individuals they describe cannot be recognized.

The sample consists of 116 consecutively evaluated hospitalized patients who were admitted after an episode of serious violence in the community. The data are abstracted from consultant risk assessments written by members of the Forensic Division of the Massachusetts Department of Mental Health when the patients were being considered for discharge or unsupervised grounds privileges between 1992 and 1996. Serious violence was defined according to MacArthur criteria¹³ as involving either use of a weapon or an assault causing serious physical harm. Serious violence included the following criminal categories: homicides, assault and battery causing significant injury, assault and battery with a dangerous weapon, assault with a dangerous weapon, rape, arson, and indecent assault and battery. Arson is not included among MacArthur acts of serious violence, but two cases are included because 10 deaths resulted. Analyzing the data with the two arson cases deleted did not change any results.

Risk assessment reports were based on patient interview, chart review, and consultation with the clinical team. Reported data included demographics and diagnosis; legal history; history of substance abuse; description of violence, including the identity of the victim; the perpetrator's mental status at the time of the violent act; and the patient's current mental status as assessed by the consultant.

The patients' risk assessments were reviewed. In 90 (77.6%) of the 116 cases, the records were adequate to assess the patient's mental status when vio-

lent. Initially, delusions were rated with a six-category rating—definitely, probably, or questionably delusional; and questionably, probably, or definitely not delusional. When these six categories were assigned numerical values of one to six, two independent raters correlated $r = 0.91$ in their ratings of delusions. Inspection of the data suggested that the six categories could be collapsed into three: delusions (definitely or probably) present; delusions questionably present; delusions absent. The data were analyzed using this three-category scheme.

At the time of evaluation, the median age of the patients was 40.9 years, and the patients had been hospitalized a mean of 3.35 years ($SD = 5.17$ years). Fifty-two patients had been transferred into the civil hospital after a criminal commitment to Bridgewater, the state forensic hospital. Of these 52, 28 were initially imprisoned, were then transferred to Bridgewater, and from there were sent to a civil hospital. Thirty-three patients had been admitted on a civil commitment directly to the civil hospital. In five cases data were missing.

Eighty-one (90%) of the 90 patients were men. Forty-five (50%) had diagnoses of schizophrenia or schizoaffective disorder. Twenty-eight (31.1%) of 90 had paranoid disorder, 7 (7.8%) had schizophrenia, and 10 (11.1%) had schizoaffective disorder. Nine (10.0%) patients had a diagnosis of bipolar disorder, seven carried a primary substance abuse diagnosis, and six or fewer had each of the following diagnoses: other psychotic disorders, depression, organic brain syndrome, miscellaneous other. Four had missing diagnoses. Thirty-six (40.0%) patients carried either a primary (7.8%) or secondary (32.2%) substance-related diagnosis.

Delusions were scored as definitely ($n = 41$) or probably ($n = 3$) present in 44 (48.9%) cases. In these cases, the record included a concrete description of a bizarre belief or a belief that we judged to be clearly false in the context of the history provided. Examples included a man who attacked two random strangers with an axe in the belief that they were his uncles who were trying to kill him; a man who assaulted his wife in the belief she was having sex with multiple rock stars and politicians; and a woman who killed her infant to save the child from being killed by family and friends whom she believed to be members of a satanic cult.

In five (5.6%) cases, the only delusion clearly described was that a hallucinated percept was real and had an independent reality. Analyzing the data with these five excluded did not change any of the results.

Delusions were scored as questionably present in 22 (24.4%) episodes. In these cases, the violence occurred during a period in which the record documented that the patient was chronically psychotic. These reports often included a statement that rehospitalization occurred after the patient had stopped taking medication and become psychotic. In addition, most of these reports documented delusional mental status in the hospital. Absent in these episodes scored as questionable was a description of specific delusions at the time of violence.

Delusions were scored as definitely ($n = 17$), probably ($n = 6$), or questionably ($n = 1$) absent in 24 (26.7%) violent episodes. In these cases, the record included no evidence to suggest any history of a disorder characterized by delusions. Reported observations of mental status when violent showed no evidence of delusions. Typically, there was also positive evidence that the crime was motivated by a reality-oriented motive such as revenge, need for money, or pedophilia. For purposes of analysis, the one case of questionably absent delusions was lumped with the definitely and probably absent cases.

When rated present, delusions were scored as driving the violence or incidental to it. "Driving" means that the delusional belief appeared to motivate the violence. Examples include a patient who tried to kill the doctor who he believed was in love with him when she refused to marry him, or the man who attacked his mother believing she was poisoning his food. For inter-rater reliability of driving/incidental ratings, $\kappa = 0.79$.

Drug and alcohol use was scored in three categories: (1) under the influence at the time of violence; (2) active history of drug or alcohol abuse, but no data on whether under the influence during the violent episode; or (3) a statement that the person did not use drugs or alcohol, or had used in the past but was abstinent during the time in which the violent episode occurred.

Results

Twenty-one patients had killed, 46 had used a weapon, 10 had seriously assaulted, 11 had sexually assaulted, and 2 had committed arson. In 83 cases, some data on the victim were present. Victims were women in 54.7 percent of 75 cases, adults in 86.7 percent of 72 cases, family members in 39.8 percent of 83 cases, and nonfamily in 50 (60.2%) of 83 cases. Among nonfamily victims, there were 18 acquaintances, 20 strangers, 7 staff, and 5 unknown.

Type of delusions could be rated in 43 of 44 cases: 29 threat, 3 control/override, 5 bizarre, 1 other, and 5 associated with auditory hallucinations; 32 (72.7%) of 44 were threat or control/override delusions. In 35 of 44 cases in which delusions were present, delusions were rated as driving ($n = 34$) or incidental ($n = 1$).

Data on substance abuse were present in 61 (67.8%) of 90 cases. In 51 (83.6%) of 61 there was a history of substance abuse, and 14 of these 51 were under the influence of substances when violent. Ten perpetrators were abstinent when violent.

The relationship between delusions and substance abuse when violent is shown in Table 1. The table illustrates first that substance abuse was present in 51 of 61 cases, but delusions were present in only 40 of 61 cases. Even in this hospitalized sample in which almost every patient was diagnosed with a major mental disorder, violence was not associated with delusions in one third of cases. The table also illustrates that there is no relationship between the two variables—substance abuse is consistently present whether delusions are definitely present, questionably present, or absent.

In 10 cases substance abuse was absent: 6 individuals were delusional, 1 questionably delusional, and 3 not delusional when violent. Remarkably, 5 of these 10 had killed a family member—4 when delusional and 1 when angry but not delusional.

In 6 cases the perpetrator had been taking antipsychotic medication at the time of violence: 2 were definitely and 1 was probably delusional; 3 were definitely not delusional. Of the 2 delusional patients who were taking medication, 1 was an intractably delusional schizophrenic patient with no substance abuse history who had killed her mother. The other was a delusional man with unknown substance history who had thrown a big ashtray at his roommate.

Table 1 Substance Abuse and Delusions at Time of Violence

	Substance Abuse			Sum
	Absent ($n = 10$)	Positive History* ($n = 37$)	Under the Influence ($n = 14$)	
Delusions				
Absent	3	11	7	21
Questionably present	1	7	2	10
Definitely present	6	19	5	30
Total	10	37	14	61

* No data are available to show whether under the influence at time of violence.

Discussion

The major result of this research is that, in a sample of patients hospitalized after an episode of serious violence, 83.6 percent had histories of substance abuse. This was consistently true of delusional and nondelusional patients alike. Few patients were violent and delusional in the absence of a history of substance abuse.

These results are consistent with the report of Appelbaum *et al.*¹¹ that community violence rarely occurs in the absence of substance abuse, but inconsistent, in that in the current sample delusions and violence were associated. The patients in the study by Appelbaum *et al.* were briefly hospitalized and mainly depressed. The current results describe violence by chronically hospitalized, older patients, many of whom have schizophrenia.

In the current study, when delusions were present, they almost always appeared to motivate or drive the violence. Over half the delusions were threat control/override. If we exclude the 5 episodes of auditory hallucinations, the 29 threat control/override episodes represent over 76 percent of all delusions that could be rated for content. This result is consistent with prior reports that delusions and violence are associated and that threat control/override delusions are particularly related to violence.^{4,10,16}

Delusional violence in the absence of substance abuse rarely occurred, but when it did, it was often lethal for a family member. This deserves further study.

A weakness of this study is that the records on which we relied were created before we defined this problem, so that data on substance abuse were often missing or incomplete. However, the record review method carries no requirement for informed consent, so the sample includes all identified eligible cases.

A second weakness is that these are chart diagnoses from a half dozen hospitals, made at widely different times. A third weakness is that the initial assessments of mental status when violent were made at different times and in different settings: some were obtained in competency exams very soon after arrest; others came from criminal responsibility evaluations done somewhat later; and still others were obtained during multiple interviews during purely civil hospitalizations.

In summary, this study provides evidence for violence motivated by delusions, usually of threat or control/override. However, even in this hospitalized sample in which we would expect to see delusional

violence, such violence occurred infrequently in the absence of substance abuse.

The practical implication of these results is to stress the importance of careful evaluation of substance abuse whenever the clinician has any concern about potential violence.

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