Characteristic Hostility in Schizophrenic Outpatients

by Stephen J. Bartels, Robert E. Drake, Michael A. Wallach, and Daniel H. Freeman

Abstract

In this study of 133 schizophrenic outpatients, we assessed characteristic hostility and correlates of hostility over a 6-month period. Results showed that 13 percent of the study group were characteristically violent, 18 percent were characteristically threatening, and another 21 percent were irritable and argumentative. About half (48%) were without hostility. A multiple regression model identified six variables—housing instability, hallucinations or delusions, schizoaffective diagnosis, lack of depression, alcohol use, and bizarre behavior—that together accounted for over 50 percent of the variance in observed characteristic hostility. Hostility also predicted rehospitalization and total inpatient days during 1-year followup. Implications of these findings for assessment and future research are discussed.

Schizophrenic patients in the community manifest a variety of hostile behaviors described in the literature by terms such as violence, aggression, assaultiveness, disruptiveness, threats, or irritability. Hostile behaviors of various types complicate the course of schizophrenia (Krakowski et al. 1986), dramatically affect communities (Safer 1987), and head the list of burdens identified by families of the mentally ill (Lefley 1987). Although research has focused predominantly on acute episodes of assaultive behavior associated with hospitalization, less dramatic and more characteristic forms of hostility are critical to daily community adjustment for many patients. Characteristic hostility—behaviors that are chronic and repetitive—must be understood and addressed in treatment planning and program development.

We will briefly review the literature that bears on characteristic outpatient hostility before describing our attempts to examine this problem empirically.

Dangerousness is a central criterion for involuntary hospitalization, and aggression frequently precipitates hospital admissions or incarcerations (Tardiff and Sweillam 1980; Craig 1982; Rossi et al. 1986). Schizophrenic patients commonly commit violent acts while hospitalized (Shader et al. 1977; Fotrell 1980; Tardiff and Sweillam 1982; Karson and Bigelow 1987), but extrapolating from inpatient studies to outpatient behaviors is problematic for several reasons. In addition to problems of definition and assessment (Lion et al. 1981; Convit et al. 1988), stresses and supports in the community may be quite different from life in the hospital, including greater possibilities of substance abuse in the community. With few exceptions (Alterman et al. 1980; Yesavage and Zarcone 1983; Yesavage 1984), factors germane to community adjustment—such as substance abuse, medication compliance, and psychosocial problems—are omitted from inpatient studies.

More directly relevant to community adjustment are studies of preadmission violence and arrests. However, only violence leading to hospitalization is the focus of such work; behavior related to hostility that does not lead to arrests or hospitalizations is missed in these studies. Preadmission violence is reported in 8–17 percent of involuntary admissions (Tardiff and Sweillam 1980;
Evaluations of 2,916 outpatients in private outpatient clinics and found that only 3 percent of the patients had recently engaged in assaultive behavior. About one-fifth of these patients carried a diagnosis of a major psychotic disorder, but schizophrenia was not analyzed separately.

Thus, the existing information on threatening and assaultive behavior by schizophrenic outpatients is limited and difficult to interpret as to implications for community adjustment. Perhaps of particular significance, studies of violence generally fail to differentiate between patients who are admitted for a single and uncharacteristic episode of violence and those who are chronically and characteristically hostile (Krakowski et al. 1989). Studies of violence also fail to consider other aspects of hostility, such as chronically threatening behaviors, that affect community adjustment.

The aim of this study was to examine characteristic hostile behaviors — violence, threatening behavior, and irritability — among schizophrenic outpatients. We addressed the following questions:

1. What are the baseline levels of characteristic hostility among schizophrenic outpatients in an urban setting?
2. How are background variables, substance use, psychiatric symptoms, medication noncompliance, and psychosocial supports and stressors related to characteristic levels of hostility?
3. Does characteristic hostility predict hospital tenure?

Methods

Study Group. Subjects for this study were identified from a review of the entire November/December 1983 caseload for the Ambulatory Community Service (ACS) of the Cambridge-Somerville Mental Health and Retardation Center in Massachusetts. The ACS is a mobile, multidisciplinary team of community-based clinicians charged with the outpatient treatment of the most severely disturbed patients discharged from Metropolitan State Hospital to the cities of Cambridge and Somerville (Cotton et al. 1980). ACS was an early model of what is now termed “assertive case management” (Bond et al. 1988). Patients are referred to ACS because of their high severity of illness and need for comprehensive community services after leaving the State hospital.

The sample has been described in detail elsewhere (Drake and Wallach 1988, 1989; Drake et al. 1989a, 1989b). Clinical diagnoses from the patients’ records were reviewed according to DSM-III (American Psychiatric Association 1980) criteria by an ACS psychiatrist, who made the final determination in the event of a disagreement. Inclusion criteria for the present study included (1) having a primary DSM-III diagnosis of schizophrenia or schizoaffective disorder, (2) residing in the community rather than in an institutional setting, (3) being known to the primary clinician responsible for rating psychiatric symptoms and psychosocial variables, and (4) being located for 1-year followup. A total of 133 patients met these criteria and were therefore included in the analysis presented here.

The study group had a mean age (± SD) of 38.3 ± 11.4 years (all patients were between the ages of 20 and 65 because those outside this range were covered by other treatment teams) and contained 59 percent men and 41 percent women. Eighty-six percent of the sample (n = 115) had a diagnosis of schizophrenia, and 14 percent (n = 18)
were diagnosed as schizoaffective disorder. Seventy-one percent of the sample were single; 9 percent were married; and 20 percent were separated, divorced, or widowed. Almost two-thirds (64%) had a high school education, but only 11 percent were gainfully employed at the time of the study. Past time spent in psychiatric hospitals (mean ± SD) averaged 4.6 ± 4.8 years.

**Measures**

Hostility. Hostile behaviors (violence, threats, and irritability) were rated by each patient’s primary clinician. All 14 clinicians (11 case managers, 3 nurses) were trained to assess hostility and other measures with case vignettes during individual sessions. Clinicians were asked to rate the patient’s characteristic level of hostility over the prior 6-month period. Because these clinicians were responsible for actively maintaining contact with the patient’s entire support system (often including family, day treatment center staff, contacts in the patient’s living situation, therapist, and medical and psychiatric physicians), they were in a unique position to integrate behavioral data from a variety of sources. Aggressive behaviors resulting in legal charges or hospitalizations became known through active relationships with all local court clinics and hospitals. Hence, the final rating was not based on a single, uncharacteristic threatening behavior.

The primary clinicians rated characteristic hostility over the previous 6 months using a 5-point scale of severity: 1 = no hostility, 2 = irritability and argumentativeness, 3 = verbally threatening behavior or mild object-directed aggression, 4 = destruction of property or interpersonal assault without harm, and 5 = assaultiveness with potential or actual harm. This scale was adapted from the 7-point hostility item in the Brief Psychiatric Rating Scale (Overall and Gorham 1962), and each point was anchored descriptively with an example. Interrater agreement (determined by comparing ratings of the primary clinician and a medication group psychiatrist who followed the same cohort of patients) on a sample of 18 patients in the larger aftercare caseload was 0.74 (kappa coefficient). Reliability over 6 months, or stability, was 0.75 (kappa coefficient).

This clinician 5-point rating was validated by comparison with several other instruments and rating perspectives. The verbal attacks subscale of the Lagos Scale (Lagos et al. 1977), the verbal aggression subscale of the Modified Overt Aggression Scale (Yudofsky et al. 1986), the Hostility-Guilt Inventory (Buss and Durkee 1957), and our 5-point scale were administered by a research psychiatrist to an independent sample of 18 schizophrenic patients living in supportive housing or in family settings. These patients’ case managers and their residential house managers or family members (if they lived at home) were then independently interviewed using all of the same scales except for the Hostility-Guilt Inventory. Each assessment was based on behavior over the past 6 months. All of the measures were highly interrelated, and the case manager 5-point rating of hostility was correlated with the other hostility measures between 0.47 and 0.75 (Kendall’s tau-c), all significant at p ≤ 0.01.

Psychiatric symptoms. Primary clinicians also rated psychiatric symptoms according to 5-point scales defined by narrative anchor points with methodology similar to that described above and in detail elsewhere (Drake and Wallach 1988; 1989; Drake et al. 1989a, 1989b). As above, clinicians rated the patient’s baseline level of symptomatology over the previous 6 months. Separate scales assessed (1) hallucinations or delusional thinking; (2) paranoid ideation; (3) disorganized, incoherent speech; (4) bizarre appearance or behavior; (5) depressed mood; (6) suicidal ideation or behavior; and (7) negative symptoms. Interrater agreement, again determined on the sample of 18 patients by comparing ratings of the primary clinician and the medication group psychiatrist, ranged from 0.60 to 0.82 (kappa coefficients) for most of the measures, but was lower for hallucinations or delusional thinking (k = 0.44), paranoid ideation (k = 0.36), and disorganized, incoherent speech (k = 0.38).

Psychosocial factors. Psychosocial factors were evaluated by the primary clinician along a continuum ranging from support/strength to stress/weakness. We believe that psychosocial factors are best conceptualized in this dualistic manner, which recognizes an interaction between coping and environment (Teague et al. 1989). A 5-point scale was used with the following ratings: “highly significant strength or support,” “significant strength or support,” “not relevant or pluses balance minuses,” “significant stressor or problem,” or “highly significant stressor or problem.” Psychosocial factors rated were meals, finances, housing, regular daily activity, relationships with staff, and social relationships. These were defined with anchor points. Interrater agreement on the sample of 18 patients ranged from 0.72 to 1.0 (kappa coefficients), with the exception of relationships with staff (k = 0.42).

Medication compliance. Medication compliance was rated by the primary clinicians using a 5-point
scale identical to the one used to evaluate psychosocial factors. Interrater agreement on the sample of 18 patients was 0.78 (kappa coefficient).

Substance use. Alcohol and street drug use over the prior 6 months were rated separately by the primary clinician on the basis of a 5-point scale: “not present,” “mild,” “moderate,” “severe,” or “extremely severe.” "Not present" indicated abstinence. "Mild" referred to occasional or minimal use that was not considered problematic by clinicians. “Moderate” use referred to persistent use despite clearly associated problems in correspondence with the DSM-III-R (American Psychiatric Association 1987) diagnosis of psychoactive substance abuse. “Severe” and “extremely severe” referred to regular excessive consumption or binges, with severity judged according to the extent of associated problems, and indicated psychoactive substance dependence. Our clinician ratings of current substance abuse correlate strongly with DSM-III-R diagnoses made by structured interview, but they are more sensitive (Drake et al. 1990). Patients were considered “dual diagnosis” if their use was rated moderate or greater on alcohol, street drugs, or both (Drake and Wallach 1989). Interrater agreement on the sample of 18 patients was 0.80 for alcohol use and 0.95 for street drug use (kappa coefficients).

Medical problems. Chronic medical problems requiring ongoing care were rated by primary clinicians, who were responsible for coordinating annual evaluations and general medical care. Ratings were based on a 5-point scale identical to that used to assess substance use. Interrater agreement on the sample of 18 patients was 0.89 (kappa coefficient).

Hospital tenure. Patients were followed prospectively for 12 months from the point of initial data collection to determine hospital tenure. They were assessed for rehospitalization and total number of in-hospital days during followup. These data were collected by a research assistant who interviewed the primary clinicians, reviewed outpatient records, and checked hospital records for frequency and length of hospitalization.

Analysis. Kendall’s tau-c (Goodman and Kruskal 1954) was used to estimate the correlation between ordered variables. Correlations and associations were deemed statistically significant if $p < 0.05$. When several bivariate correlations were tested together, significance levels were adjusted using the Bonferroni correction (Miller 1981). Associates of hostility were modeled using multiple regression analysis. These techniques have recently been shown to be robust for ordered categorical data such as ours (D’Agostino and Sullivan 1989). The multiple regression model was identified with an “all possible” procedure followed by a residual analysis, which included influence and leverage diagnostics and used predicted values as well as included and excluded variables (Kleinbaum et al. 1988; SAS Institute 1985).

Results

A relatively small proportion of subjects (13%) were characteristically violent—that is, rated as “severe” ($n = 14$) or “extremely severe” ($n = 3$) on our scale. An additional 18 percent ($n = 24$) were threatening, and 21 percent ($n = 28$) were irritable. Nearly half of the sample (48%, $n = 64$) showed no hostility.

Hostility was significantly correlated with two background character-istics: gender and diagnosis. Table 1 shows that violent patients (hostility rating = 4 or 5) were more likely to be male, and that threatening and violent patients (hostility rating = 3, 4, or 5) were more likely to have a schizoaffective diagnosis. Hostility was not significantly related to age, marital status, education, work status, medical problems, or past hospital tenure.

Characteristically hostile patients were more symptomatic. Table 2 shows that bizarre behavior, suspicious or paranoid thinking, disorganization, and hallucinations or delusions were strongly correlated with hostility. However, suicidal ideation, negative symptoms, and depression were not significantly correlated with hostility. Table 2 also illustrates that hostility was strongly associated with psychosocial problems. Three-fourths or more of violent patients (hostility rating = 4 or 5) had significant difficulties maintaining stable housing, finances, and daily activities. Difficulties with meals showed a similar but weaker trend. Hostility was not correlated with problems in social relationships or relationships with staff, although it can be seen that the violent patients had the most difficulties in these areas. In addition, violence was associated with medication noncompliance. Seventy-one percent of the violent patients (hostility rating = 4 or 5) had problems with medication compliance, compared with only 17 percent of those without hostile behaviors (hostility rating = 1).

Patients who exhibited greater hostility were also more likely to abuse alcohol and other drugs (table 2). Over half (59%) of the characteristically violent patients (hostility rating = 4 or 5) were dually diagnosed, while only 17 percent of those patients without hostility (hostility rat-
Table 1: Hostility and background characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>No hostility (n = 64)</th>
<th>Irritable (n = 28)</th>
<th>Threatening (n = 24)</th>
<th>Violent (n = 17)</th>
<th>Correlation</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean ± SD age (years)</td>
<td>39.4 ± 12.0</td>
<td>40.0 ± 10.2</td>
<td>36.7 ± 11.9</td>
<td>33.8 ± 8.9</td>
<td>-0.11</td>
<td>0.051</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>50%</td>
<td>61%</td>
<td>54%</td>
<td>94%</td>
<td>0.23</td>
<td>0.0061</td>
</tr>
<tr>
<td>Marital status (single)</td>
<td>89%</td>
<td>96%</td>
<td>88%</td>
<td>94%</td>
<td>0.03</td>
<td>0.612</td>
</tr>
<tr>
<td>Schizoaffective diagnosis</td>
<td>6%</td>
<td>4%</td>
<td>29%</td>
<td>35%</td>
<td>0.22 &lt;0.0012</td>
<td></td>
</tr>
<tr>
<td>Education (&gt; high school)</td>
<td>67%</td>
<td>79%</td>
<td>42%</td>
<td>59%</td>
<td>-0.10 &lt;0.0012</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>20%</td>
<td>21%</td>
<td>13%</td>
<td>6%</td>
<td>0.07</td>
<td>0.144</td>
</tr>
<tr>
<td>Medical problems</td>
<td>16%</td>
<td>29%</td>
<td>29%</td>
<td>35%</td>
<td>0.12</td>
<td>0.025</td>
</tr>
<tr>
<td>Past hospitalization (years)</td>
<td>4.0 ± 4.8</td>
<td>5.4 ± 5.3</td>
<td>3.8 ± 3.6</td>
<td>6.4 ± 5.3</td>
<td>0.15</td>
<td>0.015</td>
</tr>
</tbody>
</table>

Note.—For ease of illustration, 5-point hostility scale collapsed into 4 categories (with points 4 and 5 considered violent). Full scales used for all analyses. All correlations determined by Kendall’s tau-c.

1Significant at p <0.05 after Bonferroni adjustment.
2Significant at p <0.01 after Bonferroni adjustment.

Table 2: Hostility and clinical correlates

<table>
<thead>
<tr>
<th>Psychiatric symptoms</th>
<th>No hostility (n = 64)</th>
<th>Irritable (n = 28)</th>
<th>Threatening (n = 24)</th>
<th>Violent (n = 17)</th>
<th>Correlation</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bizarre behavior</td>
<td>21 (33)</td>
<td>14 (50)</td>
<td>15 (63)</td>
<td>14 (82)</td>
<td>0.32 &lt;0.0013</td>
<td></td>
</tr>
<tr>
<td>Paranoid</td>
<td>28 (44)</td>
<td>18 (64)</td>
<td>15 (63)</td>
<td>17 (100)</td>
<td>0.30 &lt;0.0013</td>
<td></td>
</tr>
<tr>
<td>Disorganized</td>
<td>20 (31)</td>
<td>14 (50)</td>
<td>14 (58)</td>
<td>15 (88)</td>
<td>0.28 &lt;0.0013</td>
<td></td>
</tr>
<tr>
<td>Hallucinations/delusions</td>
<td>26 (41)</td>
<td>18 (64)</td>
<td>14 (58)</td>
<td>15 (88)</td>
<td>0.28 &lt;0.0013</td>
<td></td>
</tr>
<tr>
<td>Suicidality</td>
<td>15 (23)</td>
<td>7 (25)</td>
<td>9 (38)</td>
<td>9 (53)</td>
<td>0.14</td>
<td>0.018</td>
</tr>
<tr>
<td>Negative symptoms</td>
<td>33 (52)</td>
<td>15 (54)</td>
<td>7 (29)</td>
<td>7 (41)</td>
<td>-0.11 &lt;0.0013</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>25 (39)</td>
<td>19 (68)</td>
<td>9 (38)</td>
<td>10 (59)</td>
<td>0.07</td>
<td>0.156</td>
</tr>
</tbody>
</table>

Psychosocial problems

| Housing                               | 4 (6)                 | 8 (29)             | 10 (42)              | 14 (82)         | 0.36 <0.0012|
| Finances                              | 13 (20)               | 9 (32)             | 10 (42)              | 13 (76)         | 0.30 <0.0012|
| Daily activity                        | 27 (42)               | 15 (54)            | 16 (67)              | 15 (88)         | 0.25 <0.0012|
| Meals                                 | 11 (17)               | 3 (11)             | 6 (25)               | 8 (47)          | 0.18        | 0.0033    |
| Staff relationships                   | 6 (9)                 | 3 (11)             | 1 (4)                | 10 (59)         | 0.06        | 0.174     |
| Social relationships                  | 29 (45)               | 17 (61)            | 10 (42)              | 11 (65)         | 0.07        | 0.135     |
| Medication noncompliance              | 11 (17)               | 10 (36)            | 12 (50)              | 10 (59)         | 0.35 <0.0013|

Substance use

| Alcohol                               | 6 (9)                 | 6 (21)             | 10 (42)              | 10 (59)         | 0.31 <0.0013|
| Street drugs                          | 6 (9)                 | 7 (25)             | 7 (29)               | 8 (47)          | 0.24        | 0.0033    |
| Dual diagnosis                        | 11 (17)               | 10 (36)            | 12 (50)              | 10 (59)         | 0.35 <0.0013|

Note.—Full scales used in all analyses. All correlations determined by Kendall’s tau-c. The following cutoffs were used for numbers and percentages: symptom ratings ≥ 3 (moderate to extremely severe), psychosocial problems ≥ 4 (significant to highly significant stressors), and substance use ≥ 3 (DSM-III-R abuse or dependency).

1Significant at p <0.05 after Bonferroni adjustment.
2Significant at p <0.01 after Bonferroni adjustment.
3Significant at p <0.001 after Bonferroni adjustment.
Table 3: Multiple regression equation for hostility

<table>
<thead>
<tr>
<th>Variables in equation</th>
<th>Parameter estimate</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>0.283</td>
<td>0.052</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hallucinations/delusions</td>
<td>0.161</td>
<td>0.066</td>
<td>0.016</td>
</tr>
<tr>
<td>Schizoaffective diagnosis</td>
<td>0.668</td>
<td>0.202</td>
<td>0.001</td>
</tr>
<tr>
<td>Depression</td>
<td>-0.221</td>
<td>0.069</td>
<td>0.002</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>0.179</td>
<td>0.059</td>
<td>0.003</td>
</tr>
<tr>
<td>Bizarre behavior</td>
<td>0.129</td>
<td>0.075</td>
<td>0.089</td>
</tr>
<tr>
<td>Intercept</td>
<td>-0.068</td>
<td>0.287</td>
<td>0.814</td>
</tr>
</tbody>
</table>

Note.—Hostility defined as a 5-point variable but collapsed to 4 points (as shown in previous tables) for regression analysis. Computations based on SAS Procedural Regression. $R^2 = 0.514$.

Discussion

Our study focuses on characteristic patterns of hostility as distinct from rare or single events. In defining a group that has characteristic hostility, associated features and traits may be more reliably identified. To be pertinent, the basis for defining chronicity must include a sufficient timespan and range of ecologically meaningful settings. Community case managers are in a unique position to consider such a perspective.

In our study group of treated schizophrenic outpatients discharged from an urban State hospital, characteristic hostility was related to male gender, schizoaffective diagnosis, substance use, psychotic symptoms, psychosocial problems, medication noncompliance, and prospective hospital tenure. Six variables contained in our multivariate model—housing instability, hallucinations or delusions, schizoaffective diagnosis, lack of depression, alcohol use, and bizarre behavior—explained several of the bivariate associations. For example, after controlling for them, gender, finances, daily activities, and medication noncompliance were no longer statistically significant. Paranoia and disorganized speech were also eliminated. Finally, while depression was not directly associated with hostility, it emerged as a negative correlate in the regression model. These variables as a group accounted for a remarkably large proportion of the variance, suggesting that characteristic hostility may be more predictable than isolated acts of violence, which are difficult to predict (Beck 1985).

Patients with unstable housing in this sample were homeless at least part of the time (Drake et al. 1989b). The association between homelessness and hostility is consistent with studies of criminal behavior. Fischer (1988) recently found that the homeless are prone to commit nonviolent, victimless crimes, but she suggested that the homeless mentally ill may be more likely to be involved in serious criminal activity. Other studies indicate that the homeless among the mentally ill are prone to criminal behavior (Belcher 1989), and that the mentally ill among the homeless are particularly prone to criminal behavior, including felony convictions (Gelberg et al. 1988).

Our finding of a strong relationship between severity of symptoms (hallucinations/delusions and bizarre behavior) and level of hostility is strongly supported by the literature. The majority of violent and threatening patients are disruptive and overtly psychotic (Yesavage et al. 1981; Yesavage 1984; Tanke and Yesavage 1985). Schizoaffective diagnosis correlated positively and depression negatively with hostility because schizoaффективная in our sample tended to be of the manic type. At least one other report has identified schizoaффективные patients among the schizophrenic population as more prone to violence (Shader et al. 1977).

Substance use disorders were common comorbid diagnoses in our subjects; nearly one-third met criteria for current abuse or dependency. The strong relationship in our data
between substance use and hostility is in contrast to the negative correlation with violence in schizophrenic patients in a study by Klassen and O'Connor (1988) but is consistent with several other studies of violence among such patients (Zitrin et al. 1976; Yesavage and Zarcone 1983; Richardson et al. 1985). Alcohol use may be related to hostility by one or more of several mechanisms: a direct disinhibitory effect, exacerbation of psychotic symptoms, self-medication (i.e., violent patients preferentially use substances), or an induction of medication noncompliance. Regardless of the mechanism, the strong association of substance use disorders with characteristic hostility in schizophrenia may be relevant to the clinician assessing the risk of future violent behavior (Bartels and Drake 1990).

Several caveats are warranted in the interpretation of our results. First, our hostility rating is not intended to be a quantitative measure of specific violent behaviors. Measures of violence inevitably confront problems in assessing quantity, quality, and relevance (Mulvey and Lidz, submitted for publication). Moreover, violence is a low base rate behavior, and individual episodes may be uncharacteristic. We chose to study chronic and characteristic hostility because this set of behaviors influences community adjustment and management. Grouping heterogeneous behaviors under the single rubric of characteristic hostility limits comparability with quantitative violence research but may actually yield more generalizable and clinically meaningful results.

A second potential criticism of our methods is the lack of independent ratings. Our measures of hostility, symptoms, psychosocial problems, and substance abuse are based on the use of multiple sources of information by the primary clinician. Though this may allow for rater bias, the use of corroborative sources may be essential to establish accurate ratings of dangerous behaviors in outpatient settings (Mulvey and Lidz, submitted for publication). Our own research suggests that ratings of other socially undesirable behaviors such as substance abuse also significantly benefit from a corroborative approach (Drake et al. 1990). Independent raters do not have the clinician's capacity to aggregate behavioral observations over time and situation.

Finally, the correlations obtained do not specify causality. For example, homelessness could predispose mentally ill clients toward hostility; hostile clients could be extruded from friendships and housing in the process of becoming homeless; or some underlying variable such as severity of illness could account for both hostility and homelessness. Hostility did predict both components of hospital tenure (readmission and time in hospital). Though several correlates of hostility could be contributing to the relationships, threats and violence are frequently the key criteria for determining admissions and discharges and are likely to serve as the mediating factors themselves.

Conclusions

Schizophrenic outpatients who are characteristically hostile tend to be the most severely ill in terms of psychotic symptoms and alcohol use; they suffer major psychosocial problems such as homelessness; and they spend more time in mental hospitals than nonhostile patients. Patients who are characteristically hostile appear to be more easily identified than those who engage in rare or single acts of violence. To reduce hostility among schizophrenic outpatients in the community, clinicians should focus attention on the most severely psychotic and schizoaffective patients, and should assertively address alcohol use and housing problems. If future research confirms the predictability of characteristic hostility in schizophrenia, prospective intervention studies should target high-risk patients.

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The Authors

Stephen J. Bartels, M.D., is Research Associate, New Hampshire-Dartmouth Psychiatric Research Center, Lebanon, NH, and Assistant Professor of Clinical Psychiatry, Dartmouth Medical School, Hanover, NH. Robert E. Drake, M.D., Ph.D., is Director, New Hampshire-Dartmouth Psychiatric Research Center, Lebanon, NH, and Associate Professor of Psychiatry, Dartmouth Medical School, Hanover, NH. Michael A. Wallach, Ph.D., is Professor of Psychiatry, Duke University, Durham, NC. Daniel H. Freeman, Ph.D., is Professor of Biostatistics, Dartmouth Medical School, Hanover, NH.