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Consensus judgments of discharge readiness based on paranoid behavior: to what are clinical staff responding?

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Abstract Background Salinas et al. (J Consult Clin Psychol 4:1029–1039, 2002) found that, contrary to widely held beliefs, paranoid behavior was a positive prognostic indicator for psychiatric inpatients only due to artifactual restrictions on overall level of functioning that result from traditional classification procedures. Paranoid functioning, in fact, negatively impacted consensus staff discharge-readiness judgments. This discrepancy between clinical lore and empirical findings raises a question about the aspects of paranoid functioning to which staff responds. Method Those aspects of paranoid functioning are examined in this study, using the same sample of 469 inpatients from 19 treatment units reported in the Salinas et al. investigation. Results Both dimensionally measured paranoid functioning and overall level of disability were independently associated with negative discharge-readiness decisions. However, rather than delusions or hallucinations, hostility entirely accounted for the contribution of paranoid functioning to these prognostic judgments. Conclusion We discuss implications of an alternative approach to classifying patients’ problem behavior for clinical research and practice.

Key words paranoid behavior – hostility – discharge-readiness – dimensional classification

Introduction

The common belief that paranoid behavior (e.g., presence of delusions) is prognostic of good outcomes among psychiatric inpatients has recently come into question. Traditional categorical classification systems using hierarchical criteria (e.g., Diagnostic and Statistical Manual of mental disorders [2]; Maine Scale [23]) require that paranoid behavior predominate over other, nonparanoid problem behavior in order to assign paranoid status. Better outcomes of paranoid versus nonparanoid groups have clearly been shown to be artifacts of the classification rules used to assign group status, rather than legitimate associates of paranoid behavior per se [40, 42].

Sorensen et al. [42] found the predominance requirement of traditional classification systems to artifactually exclude the most disturbed individuals from paranoid groups. Further, Salinas et al. [40] demonstrated that paranoid behavior was not prognostic of good outcomes when the artifactual influence of patients’ overall level of functioning was eliminated by use of dimensional classification rules—without hierarchical-predominance criteria. In fact, contrary to widely held beliefs, patient dispositions suggest that paranoid functioning might impact staff judgments of discharge-readiness as a negative rather than a positive prognostic indicator, irrespective of the classification rules employed. This finding raises two questions: (1) Is paranoid functioning viewed by clinical staff as a negative rather than positive prognostic indicator for determining discharge-readiness? (2) If so, what aspects of paranoid functioning or its associated attributes influence such staff consensus judgments?

Recent work emphasizes the extent to which decision-makers in naturalistic settings base judgments on empirical relationships recognized through prior experience [50]. It follows that actual predictors of successful outcomes should provide the basis for
clinical judgments of discharge-readiness. Patients’ overall disability level (or conversely, overall functioning level) and other characteristics indicative of prior disability (e.g., premorbid competency and chronicity) have regularly been the best predictors of multiply defined institutional outcomes [34].

Using exceptionally reliable measures, Paul and Mariotto [30] demonstrated that overall disability level, including both excesses in maladaptive behavior and deficits in adaptive competency, was strongly associated with unsuccessful institutional outcomes. Among specific classes of maladaptive behavior, paranoid functioning has failed to demonstrate independent prediction of outcome [39]. However, hostile-belligerence has been a strong predictor of negative outcomes, despite attenuated variability. The association between unsuccessful outcomes and hostility, including related factors such as aggressiveness and other actions that pose a danger to self or others, has been among the most consistently reported findings in the literature [20, 29, 30, 45, 48].

Although Salinas et al. [40] explicitly excluded hostility from the paranoid behavior scale they employed, several classification schemes actually include hostility in definitions of paranoid status [23, 37]. Even when indicators of hostility are not used to define paranoid status, some classification schemes assert that associated features such as anger, argumentativeness, and violence are characteristics of paranoid status [2]. Hostility and associated features have been empirically related to aspects of paranoid functioning, including both delusions [4, 8, 11, 18, 22] and hallucinations [4, 6, 11, 22]. Thus, it seems probable that the negative prognostic judgments implied by the findings of Salinas and associates might reflect a rational response by staff to the presence of hostile features that are partially correlated with paranoid functioning.

A review of the literature published from 1964 to 2007 yielded 15 studies examining the aspects of patient functioning that staff use as a basis for discharge-readiness judgments. Five studies investigated the influence of overall disability on staff judgments [3, 14, 19, 47, 49]. Nine studies focused on deficits in adaptive behavior [3, 13–16, 19, 38, 47, 48]. Eight examined excesses in maladaptive behavior not associated with paranoid functioning [5, 13, 15, 19, 38, 48, 49]. Five studies focused on paranoid behavior [15, 19, 38, 47, 48] and 11 focused on hostility [3, 5, 13–15, 19, 36, 38, 39, 47, 48].

Although limited by methodological problems, the results of the above studies generally support the hypothesis that staff view paranoid functioning as a negative prognostic indicator. Further, most cases of such apparent unfavorable prognostic judgments seem to represent rational responses to other aspects of patient functioning that actually predict outcomes. Results from several studies found greater overall patient disability to consistently impact staff judgments negatively [3, 14, 19, 47, 49]. In fact, of specific indexes reported in these studies, 68% of behavioral-deficit indexes and 53% of behavioral-excess indexes were associated with unfavorable discharge-readiness judgments. Hogarty and Ulrich [16], in an early study of the development of the discharge readiness inventory (DRI), found that factors representing adaptive competencies (i.e., community adjustment potential and psychosocial adequacy) and maladaptive behavioral excesses (i.e., manifest psychopathology and belligerence) predicted discharge-readiness judgments in expected directions. Belligerence (hostility and its associated features) was an important cue used by staff in forming negative prognostic decisions.

Previous studies also indicate that hostility exerts a strong impact on staff prognostic judgments, especially when it is expressed as a dangerous act. Seventy-one percent of hostile-belligerence indexes were associated with judgments of poor discharge readiness. Likewise, 100% of dangerousness-to-others indexes and 80% of dangerousness-to-self indexes (i.e., suicidality) were negatively related to discharge-readiness judgments.

The impact on discharge-readiness judgments of aspects of paranoid behavior, including delusions, hallucinations, and grandiosity, has not been studied independently from either overall level of functioning or hostility. Indexes of delusional ideation (43%) and of hallucinations (67%) were related to unfavorable prognostic judgments, but their independent contribution is unclear [15, 19, 36, 39, 47, 48]. Similarly, only one of two studies that focused on grandiosity found an unfavorable impact on judgments of discharge readiness [48].

In summary, findings to date suggest that clinical staff use patients’ overall disability levels as a basis for discharge-readiness decisions. Similarly, prior studies show hostility to be regularly associated with negative judgments of discharge-readiness. Despite the fallibility of human judgment in general [12] and clinical judgment in particular [9, 10, 32], the staff judgment process appears to be rational in these regards, as overall disability level and hostility have been shown to predict actual inpatient outcomes. In contrast, while the literature suggests that paranoid behavior negatively impacts discharge-readiness decisions of clinical staff, all previous reports are potentially confounded. Previous findings are consistent with the hypothesis that the primary basis for the negative impact of paranoid behavior on discharge-readiness judgments may lie in staff response to hostility—a partially correlated aspect of paranoid functioning—rather than their response to delusions, hallucinations, or grandiosity, per se.

No studies have tested the latter hypothesis by directly examining the impact of dimensionally measured paranoid functioning and the relative influence of hostility on staff discharge-readiness
judgments. Availability of data for the same patients studied by Salinas et al. [40] provided the opportunity to address this question. Objective data on patient functioning from the Time-Sample Behavioral Checklist (TSBC) [33] and data from the Psychotic Inpatient Profile (PIP) [21] permitted selection of indexes of overall disability level, paranoid functioning, and hostility. In addition, consensus staff judgments of discharge-readiness were available from medical records of patient disposition.

In the following study, regression analyses were employed to examine the relative impact of overall levels of disability, paranoid functioning, and hostility on staff discharge-readiness judgments. Staff consensus judgments of “yes—ready for discharge” or “no—not ready for discharge” were hypothesized to vary according to patients’ overall level of disability and paranoid functioning; that is, patients displaying greater overall disability and higher levels of paranoid functioning would be less likely judged ready for discharge. Further, independently measured hostility was predicted to be the basis for the apparent contribution of paranoid behavior to such staff judgments.

Method

Subjects

The same subsample of patients reported in Salinas et al. [40] was employed in the following study. Data for the subsample were drawn from a larger, multi-institutional set that was gathered to investigate characteristics of assessment instruments. The larger data set included information on 1,205 patients from 35 psychiatric units in 17 facilities throughout Illinois. Patient, staff, and unit characteristics were representative of national and large state samples.

The subsample of 469 patients had been preselected from the total sample of 1,205 specifically to examine the relationship of paranoid versus nonparanoid functioning to community outcomes. Subjects resided in 1 of 19 treatment units in public mental hospitals and mental health centers and were mostly male (55.9%) and Caucasian (62.7%), with a mean age of 36.5 years (SD = 12.76). Their socioeconomic status was primarily low, as indicated by a mean Hollingshead Index [17] of 60.6 (SD = 12.79). Their average education was 10.9 years (SD = 2.51). All subjects had been assigned “mentally ill” diagnoses, with most (83%) accorded psychotic diagnoses and the remainder diagnosed with neurotic or lesser disorders. Fifty-two percent were classified as having an “acute” rather than “chronic” length of stay (90 or fewer continuous days and fewer than 730 lifetime days in mental hospitals). In addition, subjects had mostly low to intermediate premorbid adjustment as indicated by a mean premorbid competency index of 10.9 (SD = 2.69) [30].

Procedure

As detailed in Salinas et al. [40], measurements were obtained over a 7-day assessment week on each unit, following a 3-day period for establishing reliabilities. Independent, noninteractive observers collected objective TSBC data on patient functioning through hourly time samples during all patients’ waking hours. Local clinical staff at each site completed standardized rating-scores on each patient. Agency records provided patient demographic information as well as information on patients’ disposition over a standard 6-month follow-up period, with data abstracted by trained record readers. Meetings held at each site were conducted to explain purposes and procedures, including the anonymity of all participants.

Variables and instruments

Psychotic Inpatient Profile

Procedures for completing the PIP and relevant subscales have been described elsewhere [40, 42]. One day-shift and one night-shift staff member completed the 96 items of the PIP for each patient with whom they were most familiar. Three scores derived from the PIP were used in this study: the paranoid subscale score (composed of paranoid projection, grandiosity and perceptual distortion factor scores), the nonparanoid subscale score (composed of anxious depression, care needed, psychotic disorganization, and retardation factor scores) and the hostile belligerence factor score. These scores provided direct measurement of the constructs of paranoid and nonparanoid functioning and hostility as judged by the clinical staff themselves. Intraclass interrater reliabilities (omega-squares, counting rater differences as error) were \( \omega^2 = 0.57, \omega^2 = 0.76 \) and \( \omega^2 = 0.72 \) for the paranoid subscale, nonparanoid subscale, and hostile belligerence factor scores, respectively. These coefficients underestimate correlations, as ratings took place over different settings and times (day shift and evening shift) to maximize the validity of scores.

Time Sample Behavioral Checklist

The measure of patients’ overall level of functioning was based on information from objective, hourly time-samples by independent, noninteractive observers on the Time Sample Behavioral Checklist (TSBC) [27]. Observers were present on each unit for a 10-day period. The first 3 days served to familiarize observers with the unit, to acclimate staff and patients to their presence, and to collect full-shift reliability samples on all observers at each site. During the following 7 days, observers coded patient functioning with the TSBC on a stratified, hourly time-sampling schedule for the 16 patients waking hours every day. The reliability sample obtained for all observer pairs at the end of the 3-day familiarization period yielded superb intraclass interobserver reliabilities for the TSBC indexes used in this subsample (\( \omega^2 > 0.98 \)). The TSBC Total Appropriate Behavior Index (ABI) and the Bizarre Motor Behavior Index (BMI) scores were employed in the present study. The ABI reflects patients’ overall adaptive competencies while the BMI reflects excesses and deficits associated with nonparanoid problem behavior.

Predictor variables

Overall disability level

The measure of patients’ overall disability level was based on the combination of the PIP nonparanoid subscale score and the TSBC ABI and BMI scores. As a first step in the formation of the overall disability index, the ABI score was reflected to match the directionality and skewness of the BMI and nonparanoid subscale scores so that higher values on all scores indicated greater disability [46]. Next, relative weights for the three standardized scores were derived from a principal components analysis. A single overall disability index was then formed by the sum of the three weighted scores.

Paranoid functioning

The PIP paranoid subscale score was used to index paranoid functioning. Consistent with prior definitions of paranoid functioning, this score includes measures of delusional ideation, hallucinations and grandiosity [40, 42]. Hostility was explicitly excluded from the score’s formation.
Table 1 Intercorrelations between PIP paranoid subscale, PIP hostility factor, overall disability index and staff “yes/no” judgments for the total preselected sample (N = 469)

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PIP paranoid subscale</td>
<td>-</td>
<td>0.682</td>
<td>0.165</td>
<td>-0.160</td>
</tr>
<tr>
<td>2. PIP hostile-belligerence factor</td>
<td>-</td>
<td>0.040</td>
<td>-0.187</td>
<td></td>
</tr>
<tr>
<td>3. Overall disability index (TSBC/PIP)</td>
<td>-</td>
<td></td>
<td>-0.273</td>
<td></td>
</tr>
<tr>
<td>4. Staff “yes/no” judgment (yes = 1; no = 0)</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table entries are product–moment correlation coefficients. Coefficients greater than [0.15] are significantly different from zero at P < 0.001

Hostility

The PIP hostile belligerence factor score was used to index hostility and its associated features. This score represents the frequency of hostile, obscene and threatening behavior as judged by the rater, with no overlap of items from the paranoid subscale.

Outcome measure

Discharge-readiness outcome categories

Disposition rates were available on all subjects over the standard follow-up period, providing an index of staff consensus judgments of discharge-readiness. Each patient was coded as (1) “yes—ready for discharge” (regular discharge by staff to independent living or to a community facility) or (0) “no—not ready for discharge” (continuous hospitalization over the 6-month follow-up, or only inpatient transfers, or irregular discharge—AMA or AWOL). Research personnel abstracted patient disposition data from agency records over the follow-up period. These record abstractions were triple checked to insure perfect accuracy.

Results

The pattern of intercorrelations among predictor variables, shown in Table 1, supported the proposal that paranoid functioning represents a narrow class of problem behavior that is associated with greater levels of hostility and overall disability. The paranoid score was significantly related in hypothesized directions to hostile belligerence, overall disability and staff “yes/no” judgments (mdn |r| = 0.421, range |r| = 0.160 to 0.682), while hostile belligerence was significantly correlated only with the paranoid score (r = 0.682) and staff “yes/no” judgments (r = -0.187). The index of overall level of disability was related in the expected direction to staff “yes/no” judgments (r = 0.273). Thus, hostility represents a class of problem behavior that is nearly unrelated to overall level of disability but is associated with unfavorable staff judgments of discharge-readiness.

Impact of overall disability, paranoid functioning and hostility on staff discharge-readiness judgments

As shown in Table 2, consistent with findings by Salinas et al. [40], patients who were judged ready for discharge by staff demonstrated lower levels of overall disability and paranoid functioning than those judged not ready for discharge. In addition, the staff “yes” group exhibited lower levels of hostility than the staff “no” group (r = 0.682, P < 0.001). This pattern of scores within staff “yes” and “no” subgroups is consistent with hypothesized relations.

Test of the hypotheses

Logistic regression analyses, summarized in Table 3, were used to determine (1) whether staff judgments are impacted by paranoid functioning as a negative prognostic indicator, independent of level of overall disability, and (2) whether the impact of paranoid functioning on such staff judgments is attributable to hostility.

Consistent with the pattern of differences in staff discharge-readiness judgments that was previously noted, regression model comparisons showed signif-

<table>
<thead>
<tr>
<th>Classification Measures</th>
<th>Overall disability index</th>
<th>PIP paranoid score</th>
<th>PIP hostile belligerence score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff “yes” (n = 222)</td>
<td>M</td>
<td>164.5</td>
<td>14.4</td>
</tr>
<tr>
<td>SD</td>
<td>20.39</td>
<td>13.50</td>
<td>3.529</td>
</tr>
<tr>
<td>Staff “no” (n = 247)</td>
<td>M</td>
<td>175.8</td>
<td>19.3</td>
</tr>
<tr>
<td>SD</td>
<td>19.45</td>
<td>16.83</td>
<td>4.998</td>
</tr>
</tbody>
</table>

Staff “yes” versus staff “no” differ on all three scores (|r| > 0.16, P < 0.001)
significant differences between staff “yes” and staff “no” discharge-readiness groups based on patients’ level of overall disability and paranoid functioning. As seen earlier, the overall disability index was a strong predictor of staff discharge-readiness judgments. The PIP paranoid subscale score was also significantly associated with staff judgments when added to the regression equation, independently from Overall Disability ($\chi^2$ change = 6.33, $P < 0.025$). Thus, as hypothesized, paranoid functioning appeared to serve as a negative prognostic indicator for staff irrespective of the patient’s overall level of disability.

The addition of the hostile belligerence factor score to the overall disability index and paranoid subscale scores also showed a significant increment in variance accounted for in predicting staff discharge-readiness judgments ($\chi^2$ change = 8.25, $P < 0.005$). Further, examination of relative regression weights for each variable found that the hypothesized relationships among paranoid functioning, hostility and staff judgments were obtained. Overall disability remained a significant independent predictor of staff judgments, but the contribution of paranoid functioning was rendered statistically nonsignificant with the introduction of hostility as an independent contributor to the prediction. Thus, as hypothesized, the independent impact of paranoid functioning on staff judgments previously observed is actually attributable to independently measured hostility and not to aspects of paranoid behavior, per se.

**Discussion**

Two hypotheses have been corroborated. First, elaborating findings by Salinas et al. [40], inpatient paranoid functioning appeared to serve as a negative prognostic indicator for staff consensus discharge-readiness judgments. These results further refute widely held beliefs that paranoid functioning is prognostic of good outcomes. Second, rated hostility clearly accounted for the predictive power of paranoid functioning on staff judgments rather than other aspects of paranoid behavior, such as delusions and hallucinations. Overall, the results indicate that clinical staff behaves rationally when making discharge-readiness decisions, as they based judgments on two variables that have demonstrated the strongest empirical associations with treatment outcomes in the literature.

Staff appears to adopt a dimensional approach to the interpretation of patient problem behaviors that underlie prognostic decisions. This “real-world” practice stands in sharp contrast to the conventional reliance on traditional hierarchical classification systems that lack validity-related evidence for clinical purposes. The implications of the present study for current diagnostic practices are clear. Beliefs that paranoid behavior is prognostic of good outcomes are based on an artifact of the hierarchical classification rules used to assign paranoid and nonparanoid status in traditional categorical classification systems. Dimensional assessment of specific problem behaviors prevents the contamination of research findings and clinical activities by such artifacts. Dimensional classification thereby bolsters treatment decisions, communicating with colleagues, and making prognostic judgments by improving the quality of information used to support such activities [24].

Future efforts should focus on clarifying the extent to which clinical staff simply react unfavorably to individuals displaying hostile behavior or whether they actually make explicit discharge-readiness decisions based on predictions of patient success or failure in the postdischarge community. In addition to the desire to make accurate judgments, commentators have noted that institutional staff has justifiable concerns regarding their liability consequent to discharge decisions [35, 41, 43]. However, findings by Allen and colleagues suggest that the negative response by staff to hostile patient behavior is primarily an emotional one [1]. Understanding the relative influence of emotional reactions of staff and their more rational concerns regarding the consequences of patient’s hostile behavior following discharge should help to improve staff training for making more accurate decisions regarding discharge-readiness.

As noted by references cited in the introduction, clinical staff respond to the nature and degree of hostile behavior exhibited by patients, judging the more dangerous behavior most unfavorably. This differential response is especially relevant to disposition and placement decisions in contemporary forensic psychiatric settings, where options of varying restrictiveness (e.g., maximum, intermediate and minimum security) may be available [44]. If forensic staff were to mirror the apparent rational behavior of staff in the present study, such disposition decisions would be based on the actual nature and severity of current problem behavior. As a step toward rational and ethical practice, the regular assessment and reduction of hostile behavior should be a cornerstone of treatment for both forensic patients and the chronically mentally ill. Effective nonpharmaceutical procedures are available to reduce levels of hostile and other intolerable behaviors [25, 34].

In future research involving the nature of specific classes of problem behavior in the severely mentally ill, findings substantiate prior admonitions to control for patients’ overall functioning, or disability, level [31, 40, 42]. It is clear that investigations of phenomena associated with paranoid functioning should measure and separately delineate hostility and related acts. Given the latter recommendation, it would be beneficial to reassess any previously observed or theorized associations between delusions, hallucinations and other variables.
Conclusion

Attention to specific problem behaviors and their severity would not only help reduce problems plaguing research in severe mental illness but would also go far in elevating the status of clinical work to that of an applied science. As an example of such problems, the inappropriate generalization of prior research findings to clinical work could lead to the seemingly contradictory conclusions that individuals accorded paranoid status have good prognoses while those exhibiting paranoid behavior have poor prognoses [40, 42]! In contrast, rather than a reliance on traditional diagnostic schemes or subjective, anecdotal clinical assessments, the use of detailed and objective data on problem behavior for informing treatment procedures, have demonstrated remarkable clinical utility [7, 29, 30]. Not only is such a shift in current procedures consistent with the contemporary movement toward evidence-based clinical practice, but it is also ethically imperative [26, 28].

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