Testing Definitions of Symptom Remission in First-Episode Psychosis for Prediction of Functional Outcome at 2 Years

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Background: To determine the clinical relevance of different definitions of symptom remission for prediction of functional outcome in first-episode psychosis (FEP).

Methods: One hundred forty-one individuals receiving treatment for an FEP at a specialized early intervention service had positive and negative symptoms and functional status rated every month over the first 2 years of treatment using the Scale for the Assessment of Positive Symptoms, Scale for the Assessment of Negative Symptoms, and Social and Occupational Functioning Assessment Scale. Subjects were classified according to 4 definitions of remission varying the criteria for severity (negative symptom inclusion/exclusion) and duration (3/6 mo sustained).

Results: Positive symptom remission was achieved by 94% and 84% of subjects for 3 and 6 months, respectively, compared with 70% and 56% for positive and negative symptom remission, respectively. Linear regression analyses showed that only definitions of remission containing both positive and negative symptoms independently predicted functional outcome. This was confirmed by receiver operating characteristic analyses where remission based on positive and negative symptoms was marginally better than positive symptoms alone (difference in area under the curve; \( z = 1.94, P = .052 \)). There was little difference between a time criterion of remission of positive and negative symptoms of 3 (sensitivity = 100%, specificity = 42%) or 6 (sensitivity = 90%, specificity = 57%) months.

Discussion: Consistent with the consensus definition of remission in schizophrenia, severity of both positive and negative symptoms in defining remission in FEP is necessary although a 3-month criterion had equal predictive validity to the 6-month criterion.

Key words: first-episode psychosis/remission/schizophrenia/functional outcome/negative symptoms

Introduction

A consensus definition of remission in schizophrenia was recently established based on a fixed threshold for symptom severity (no more than mild symptoms, ≤2 on Scale for the Assessment of Positive Symptoms [SAPS] and Scale for the Assessment of Negative Symptoms [SANS] global scores) and a time component (sustained for 6 mo). This definition has since been adopted as a standard measure of remission and employed in studies examining clinical course and outcome in schizophrenia.²⁻⁴ Models of longitudinal course in schizophrenia as well as in mood and anxiety disorders indicate that sustained remission can lead to recovery.¹⁻⁵ While recovery is yet poorly defined in schizophrenia, a survey of experts determined good occupational and social functioning to be the 2 most important indicators of recovery.⁷ Patients who have achieved these milestones may be considered to be in a more complete state of remission and further along the path toward recovery. As a clinically relevant test of predictive validity, a symptom-based definition of remission should show a high correspondence with a functioning-based idea of subsequent recovery. Every attempt to test the consensus definition has incorporated such an approach.⁸⁻¹²

A major challenge in defining the consensus criteria in schizophrenia has been the wide heterogeneity of symptoms of the disorder and of its course and outcome. In determining the consensus, the authors suggested examining remission of positive and negative symptoms separately and did not provide a thorough justification for the choice of the 6-month time component. They stressed the need for the validity and utility of their proposed guidelines to be evaluated.¹ The studies that have heretofore evaluated these guidelines⁸⁻¹² were limited by the lack of a solid longitudinal perspective. Three studies examined only the severity component without the duration component,⁸⁻¹¹,¹² 2 studies were cross-sectional,¹¹,¹² and none of them monitored symptoms at regular and frequent intervals,⁸⁻¹² limiting their ability to effectively
test the duration criteria in light of relapses that may occur and resolve between periodic assessments. Few studies compared the consensus definition with alternate definitions of remission by varying either the symptom or duration criteria. One study found no benefit with the inclusion of mood-related symptoms, and another determined the 6-month time criterion to be an advantageous addition to the severity criteria. Another study examined the predictive value for functional outcome of the consensus definition of remission in first-episode psychosis (FEP) but only among those patients who were initially responsive to treatment. Our objective was to assess the consensus definition of remission in a naturalistic FEP population by comparing it against alternate definitions, varying in symptom makeup and duration, to see which best predict future functioning.

Methods

Setting and Subjects

The present study was carried out at the Prevention and Early Intervention Program for Psychosis in London (PEPP-London), Ontario, Canada. This program provides assessment and treatment to all cases of primarily nonaffective FEP within a predominantly urban catchment area of 390 thousand residents. The care is delivered predominantly in an outpatient setting using an assertive case management model, modified to address the special needs of a younger patient population (see Malla et al and www.pepp.ca). Admission criteria to the program include living in the defined catchment area, age between 16–50 years, symptoms meeting criteria for a Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) (DSM-IV) psychotic disorder, and having never received antipsychotic therapy longer than 1 month. Consecutive patients (n = 207) treated at PEPP over 5 years between February 1997 and February 2002 who met these criteria were asked to sign an informed consent for their participation in the symptom and functional evaluations. The program was intended for a first episode of nonaffective psychosis, and if the diagnosis of a primary affective disorder or substance-induced psychosis was clearly established at the time of initial assessment, these individuals were referred to a more appropriate service. However, this was not always possible at the time of the initial assessments because only further information confirmed the diagnosis in a small proportion of cases as being other than in the nonaffective category. Patients who did not stay in treatment and follow-up for at least 21 months (n = 66) were excluded from analyses when analyzing 2-year outcome data, while those who did not stay in treatment for at least 9 months were excluded from analysis of 1-year outcome data (n = 36). Dropouts from treatment occurred when patients moved out of the city, refused further clinical follow-up, or were out of all contact with the treatment team for greater than 3 months. Approval for the study and the consent form were obtained from the University Human Ethics Committee for health sciences at the University of Western Ontario.

Patient and Illness Characteristics

Diagnosis. Diagnosis was established with the Structured Clinical Interview for DSM-IV conducted by a masters-level trained psychologist and confirmed through consensus between the 2 senior authors (A.M. and R.N.) at the time of entry to the program and repeated at 1-year follow-up.

Symptoms. Positive and negative symptoms of psychosis were assessed by a trained clinician with the SAPS and the SANS on a systematic basis over 2 years at baseline and months 1, 2, 3, 6, 12, 18, and 24 as well as following any relapse of positive symptoms. Assessments of interrater reliability between our raters on SAPS and SANS revealed agreement within one point more than 93% of the time. For months when no research assessment was conducted (mo 4, 5, 7–11, 13–17, 19–23), symptom data were retrieved from a weekly log from baseline to the end of the second year, using a modified form of the Life Chart Schedule. This was completed by a trained research assistant supervised by the 2 senior investigators (A.M. and R.N.) and was based on information obtained from the above symptom ratings and weekly clinical notes made on preformatted program records designed to report on dimensions of symptoms (reality distortion, disorganization, negative symptoms, depression, and anxiety). Any ambiguities or doubts about symptoms were clarified through direct interview with the clinicians. This database contains data on positive and negative symptoms on the basis of the SAPS and SANS global scores with the exception that scores of 4 or 5 were collapsed into a score of 4 signifying severe pathology, and global scores for affective flattening and alogia were merged together as were global scores for avolition-apathy and anhedonia-asociality.

Functional Outcome. Assessment of functional outcome was based on the Social and Occupational Functioning Assessment Scale (SOFAS), administered every month as part of the regular PEPP research follow-up. A score >60 was used as the cutoff for good functioning because this range denotes patients who show “some difficulty in social, occupational, or school functioning, but generally functioning well, with some meaningful interpersonal relationships.” This has been used as a cut point in other studies to indicate achievement of adequate functioning. To maximize the number of subjects, we used the modal SOFAS score taken from the 4 monthly assessments between months 21 and 24. In the absence of a valid mode, the latest assessment since month 21 was taken.
Similarly, on analyses of 1-year outcome, the modal SOFAS score between month 9 and month 12 was taken. We also conducted multilevel random regression analysis for which the modal SOFAS score was not used, and instead all the SOFAS scores from month 21 to 24 were incorporated in the model. The SOFAS was chosen as opposed to the global assessment of functioning because the former does not take symptoms into account in rating functioning.

**Premorbid Functioning.** Premorbid functioning was assessed using the Premorbid Adjustment Scale (PAS). 21 The PAS total score for social and educational functioning from childhood to early adolescence was used.

**Adherence to Treatment.** Adherence to antipsychotic treatment was taken from a weekly adherence log that was scored on a scale of 0–4 (0 = 0% adherence, 1 = 0%–25%, 2 = 25%–50%, 3 = 50%–75%, 4 = 75%–100% of prescribed doses taken). The modal score for each subject over the 2 years was used, and only those subjects with a modal score of 4 were considered adherent. Adherence data were thus dichotomized due to the debate about the clinical efficacy of partial adherence to antipsychotic medication. 22

**Defining Remission**

Remission status was determined according to 4 definitions.

1. All SAPS global scores (item 7, hallucinations; item 20, delusions; item 25, bizarre behavior; item 34, positive formal thought disorder) reported ≤2 (severity criteria) for 3 consecutive months (duration criterion).

2. All SAPS global scores rated ≤2 for 6 consecutive months.

3. All SAPS global scores ≥2, and all SANS global scores excluding attention (item 7, affective flattening; item 13, alogia; item 17, avolition-apathy; item 22, anhedonia-asociality) rated ≤2 for 3 consecutive months.

4. All SAPS global scores ≤2 and all SANS global scores rated ≤2 for 6 consecutive months.

Each subject was classified separately as having met severity criteria for remission of positive symptoms, negative symptoms, and both positive and negative symptoms simultaneously for each month over 2 years. When using the weekly database, patients were judged to have met severity criteria if all symptom scores were ≤2 for every week of the month. The longest period of sustaining the severity criterion (≤2 for positive and/or negative symptoms) was calculated for each patient. Based on this, remission status (achieved remission at any point over 2 years, yes/no) was determined according to the 4 definitions described above as well as for negative symptoms alone. In the case of missing symptom data, no change was assumed, and the previous assessment was carried forward until the next symptom assessment. If there was no subsequent symptom data available before the study end point, the case was considered a dropout. An assessment was carried forward due to at least 3 months of incomplete symptom data in 20% of cases at some point over the 2-year follow-up and for 5 months in 8% of cases. The number of assessments carried forward was fewer for positive symptom–only definition because data were more often absent on negative symptoms. The 4 definitions of remission were used in linear regression analyses and sensitivity analyses, while the longest period of sustaining the severity criteria of remission was used in correlational and receiver operating characteristic (ROC) analyses. We also conducted analyses in which we included data on consecutive months in remission of negative symptoms alone.

**Statistical Analyses**

1. Correlational analyses were used to examine association between length of remission and functional outcome and between length of remission of positive symptoms to negative symptoms.

2. Regression analyses were employed to see how well the definitions predicted a continuous measure of functional outcome while controlling for covariates known to be highly associated with functioning.

3. ROC analyses, 23 a method to determine the ability of a test to discriminate between groups, to choose the optimal cutoff point and to compare the performance of tests, were employed to see how well maintaining severity criteria of remission for a longer duration predicted achievement of “good” functional outcome status. ROC analysis was performed on remission and functioning data following both 1 and 2 years of treatment. All the above tests allowed comparison of definitions that included or excluded negative symptoms.

4. Tests of proportions were employed when examining the relationship between timing of first remission (during first vs second year) and achieving good functional outcome and in seeing if a lower proportion of dropouts achieved remission. All analyses were performed on SPSS except multilevel random regression analysis that was performed on SAS.

**Results**

Clinical and demographic data were compared between 141 subjects who stayed in treatment at least 21 months and those who dropped out and were excluded from all analyses except for analyses pertaining to 1-year functional outcome. The mean length of treatment prior
to dropout was 9.1 months (median 8 mo). There were no significant differences in terms of age at entry, gender, primary diagnosis, presence of a diagnosis of substance abuse, or premorbid adjustment (see table 1). The dropouts did not differ in the proportion achieving remission, defined as 6 months remission of positive and negative symptoms within the first year (including only dropouts with a minimum of 9 mo spent in treatment; Fisher exact $P = .166$; 35% of completers and 22% of dropouts achieved this level of remission). Mean SOFAS score at the last assessment prior to dropout was 51.1 (SD 13.6); 13% of dropouts had achieved good outcome (SOFAS > 60) at this point. The number of subjects varies between analyses because of missing data on some variables. Among those who stayed in treatment at least 21 months, 139 subjects had data on presence or absence of substance-use diagnosis at baseline, 118 had data on premorbid adjustment, and 130 had data on adherence to treatment.

At some point over the first 2 years of treatment following an FEP, almost all subjects met the severity criteria for remission of positive symptoms for at least 3 months (all SAPS global scores $\leq 2$, 93.6% of patients) and most for 6 months consecutively (84.2%). Fewer patients met the severity criteria for both positive and negative symptoms for 3 months (all SAPS and SANS global scores $\leq 2$, 70.3% of patients) and just over half for 6 months consecutively (55.7%). There were 127 subjects who had data on remission status and level of functioning (SOFAS score) for 2 years following initiation of treatment. One-third of these were maintaining a good level of functioning at this time point (SOFAS modal score from mo 21–24 of >60, 32.3% of subjects).

Comparing Remission Criteria as Predictors of Functional Outcome

Correlational Analysis. Pearson correlation coefficients showed that the consecutive number of months over 2 years wherein the severity criterion for remission of positive symptoms, negative symptoms, and simultaneously for positive and negative symptoms was met were all correlated significantly to functioning at 2 years (positive symptoms $r = .397$, $P < .001$; negative symptoms $r = .528$, $P < .001$; positive and negative symptoms $r = .564$, $P < .001$). A contrast of correlation coefficients from the correlation with only positive symptoms to that with both positive and negative symptoms using Ming Test was not statistically significant ($P = .085$); however, if the total number of months, not necessarily continuously, of remission was recorded instead for positive and negative symptoms, then 2-year SOFAS score was significantly more highly correlated with total months free of positive and negative symptoms than it was to total months free of positive symptoms alone ($P = .046$). Consecutive months in remission of positive symptoms were highly correlated to consecutive months in remission of negative symptoms ($r = .463$, $P < .001$).

Regression Analysis. Linear regression analyses were performed to see whether simultaneous remission of positive and negative symptoms predicted 2-year SOFAS score, used as a continuous variable ranging from 0 to 100, in the presence of the following covariates: remission of positive symptoms alone, remission of negative symptoms alone, gender, substance-use diagnosis at baseline, adherence to treatment, and premorbid adjustment. This allowed an analysis of whether remission of positive symptoms alone or negative symptoms alone still

### Table 1. Demographic Characteristics of Sample and Subjects Who Dropped Out of Treatment and Were Excluded From the Study

<table>
<thead>
<tr>
<th></th>
<th>Subjects Remaining in Treatment At Least 21 mo ($n = 141$)</th>
<th>Subjects Who Dropped Out Before 21 mo ($n = 66$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n$</td>
<td>%</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>112</td>
<td>79</td>
</tr>
<tr>
<td>Single marital status</td>
<td>111</td>
<td>79</td>
</tr>
<tr>
<td>Age at entry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total premorbid functioning score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subjects presenting with substance-misuse diagnosis</td>
<td>47</td>
<td>34</td>
</tr>
<tr>
<td>Primary diagnosis of nonaffective psychosis</td>
<td>118</td>
<td>84.4</td>
</tr>
<tr>
<td>Primary diagnosis of affective psychosis</td>
<td>11</td>
<td>7.8</td>
</tr>
<tr>
<td>Primary diagnosis of substance-induced psychosis</td>
<td>11</td>
<td>7.8</td>
</tr>
</tbody>
</table>
Table 2. Linear Regressions: Dependent Variable Is Continuous SOFAS Score at End Point; Independent Variables Are Having Met Intensity Criteria (Yes/No) for Positive Symptom Remission for 3 (Regression 1) or 6 Consecutive months (Regression 2), Met Intensity Criteria for Negative Symptom Remission Status for 3 or 6 Consecutive Months, and Met Intensity Criteria for Simultaneous Positive and Negative Symptom Remission for 3 or 6 mo; Covariates: Gender, Substance-Use Diagnosis at Baseline, Adherence to Treatment (Yes/No), and Premorbid Adjustment

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>95% CI (B)</th>
<th>P</th>
<th>Adjusted ( \text{R}^2 ) for Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAPS ≤ 2 for 3 consecutive months</td>
<td>1.88</td>
<td>-8.80 to 12.6</td>
<td>.73</td>
<td>.28</td>
</tr>
<tr>
<td>SANS ≤ 2 for 3 consecutive months</td>
<td>-1.35</td>
<td>-11.3 to 8.57</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>SAPS ≤ 2 and SANS ≤ 2 simultaneously for 3 consecutive months</td>
<td>15.4</td>
<td>6.29 to 24.6</td>
<td>.001</td>
<td></td>
</tr>
<tr>
<td>SAPS ≤ 2 for 6 consecutive months</td>
<td>-1.45</td>
<td>-10.1 to 7.16</td>
<td>.74</td>
<td>.30</td>
</tr>
<tr>
<td>SANS ≤ 2 for 6 consecutive months</td>
<td>-2.22</td>
<td>-12.7 to 8.30</td>
<td>.68</td>
<td></td>
</tr>
<tr>
<td>SAPS ≤ 2 and SANS ≤ 2 simultaneously for 6 consecutive months</td>
<td>16.5</td>
<td>5.73 to 27.3</td>
<td>.003</td>
<td></td>
</tr>
</tbody>
</table>

Note: SOFAS, Social and Occupational Functioning Assessment Scale; FEP, first-episode psychosis; SAPS, Scale for the Assessment of Positive Symptoms; SANS, Scale for the Assessment of Negative Symptoms.

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...
frequency (32%) than does the proxy measure, having met remission status (56%–94% occurrence).

To test whether similar trends in the relationship between remission and functional outcome would be found when including more of the subjects who dropped out from treatment, further ROC analyses were performed in the same manner but covering only the first year of treatment (n = 155). Consecutive months in remission of positive symptoms during the first year was again a poorer predictor of 1-year functional outcome (SOFAS modal score from mo 9–12; AUC = 0.66) as compared with months in remission of positive and negative symptoms (AUC = 0.76; curves not shown) although the difference between the curves was not significant (Z = 1.49; P = .14). When the 3- and 6-month cut points were introduced, very similar trends were seen in sensitivity analysis with much better performance for definitions including positive and negative symptoms but very little difference between a 3- and 6-month cut point when gains in specificity are weighed against losses in sensitivity (see table 3).

**Timing of First Remission.** Prediction of good functional outcome was not associated with the timing of first remission (whether in the first or second year of treatment).

<table>
<thead>
<tr>
<th>Definition of Remission</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
<th>AUROC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitored over 2 y following an FEP (n = 127)</td>
<td>SAPS ≤ 2</td>
<td>100%</td>
<td>8%</td>
<td>34%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>3 mo</td>
<td>98%</td>
<td>16%</td>
<td>36%</td>
<td>93%</td>
</tr>
<tr>
<td></td>
<td>6 mo</td>
<td>100%</td>
<td>42%</td>
<td>45%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>SAPS ≤ 2, SANS ≤ 2</td>
<td>6 mo</td>
<td>90%</td>
<td>57%</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>3 mo</td>
<td>94%</td>
<td>19%</td>
<td>25%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>6 mo</td>
<td>85%</td>
<td>41%</td>
<td>29%</td>
<td>91%</td>
</tr>
<tr>
<td>Monitored over 1 y following an FEP (n = 155)</td>
<td>SAPS ≤ 2</td>
<td>85%</td>
<td>54%</td>
<td>34%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>3 mo</td>
<td>85%</td>
<td>54%</td>
<td>34%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>6 mo</td>
<td>62%</td>
<td>75%</td>
<td>41%</td>
<td>88%</td>
</tr>
</tbody>
</table>

*Note:* SOFAS, Social and Occupational Functioning Assessment Scale; FEP, first-episode psychosis; AUROC, area under the receiver operating characteristic curve; SAPS, Scale for the Assessment of Positive Symptoms; SANS, Scale for the Assessment of Negative Symptoms.
when defining remission as either 3 or 6 months free of positive and negative symptoms (3 mo, Fisher exact $P = .30$; 6 mo, Fisher exact $P = .63$).

**Discussion**

Our results showed that remission of both positive and negative symptoms predicted functioning after 2 years of treatment better than remission of positive symptoms alone according to all 3 types of analysis performed: a comparison of correlations between functional outcome and duration of remission, linear regressions predicting functional outcome based on remission status while controlling for confounding variables, and ROC analysis. In setting a time criterion for remission of positive and negative symptoms, linear regression analyses and sensitivity/specificity analysis showed that there was almost no difference between a criterion of 3 or 6 consecutive months of remission of positive and negative symptoms in predicting functional outcome.

It is not surprising that negative symptoms were found to be critical in the prediction of future functional status, given that there is considerable overlap between poor functioning and negative symptoms such as avolition and asociality, both being associated with impaired capacities in work and socialization, though it is worth noting from the regression analysis that they are not so important as to significantly predict functional outcome in the absence of positive symptom remission. Indeed, it is well established that negative symptoms are important in functional outcomes. While the results clearly stress the importance of considering negative symptoms in remission criteria in FEP, the general trend in early-episode schizophrenia has been to define remission solely on the basis of positive symptoms. Future studies should reinvestigate the clinical and neurobiological predictors and correlates of remission based instead on positive and negative symptoms. Monitoring the intensity of negative symptoms may be more challenging than tracking positive symptoms because a remission or relapse of positive symptoms is perhaps more easily noticed by clinicians. None of the studies assessing the utility of the consensus definition of remission performed regular assessment of negative symptoms. It may be erroneous to assume continuity of remission if positive and negative symptoms are below threshold level 6 months following initial remission, as done previously without additional symptom information during the intervening period. Applying this method in our data would have falsely categorized a full 25% (35/142) of all first remissions as continuous remissions by overlooking relapses of symptoms that had resolved by the 6-month time point. While most symptom ratings in our study were based on formal ratings using SAPS and SANS, some assessments were based on reevaluation of symptom ratings made by clinicians using the Life Chart Schedule.

The extent to which symptomatic remission must occur in order to achieve improved functioning and ultimately recovery is dependent on how stringent a definition of remission is used. As shown in table 3, over the first 2 years following an FEP, patients who failed to achieve at least 3 consecutive months free of threshold-level positive and negative symptoms invariably did not have a good level of functioning at the end of a 2-year period, while 10% of subjects who failed to achieve 6 consecutive months free of positive and negative symptoms did go on to achieve good functioning nonetheless. This may constitute a key finding of the study, indicating that remission, defined by near absence of core symptoms sustained for a minimum of 3 months, may be necessary to achieve a good functional outcome during the early phase of psychotic disorders. However, remission of both positive and negative symptoms even for 6 months is obviously not sufficient for achieving functional outcome because many patients did not achieve such improvement in functional outcome despite being in remission.

In FEP, the 3-month consecutive remission of positive and negative symptoms may have further advantages over the 6-month definition. The ROC curve suggests that 3 months is a threshold before which prediction of good functional outcome is very low and after which further maintenance of remission does not contribute much more to prediction of good functional outcome. Also a 3-month remission can be affirmed sooner while the relatively high proportion of patients (70% of cases within 2 years of an FEP) being able to meet this status makes it a very realistic goal. It should, however, be emphasized that these patients had received ongoing treatment in a specialized early intervention service where intensive psychosocial interventions and close monitoring are likely to have achieved high rates of symptomatic remission, and future work will need to determine if it applies equally well to regular care environments. This definition is consistent with the results from a survey of experts suggesting that the best definition of remission in schizophrenia is 3-month remission of both positive and negative symptoms. On the other hand, the 6-month definition has the advantage of higher specificity and positive predictive value of good outcome. To ultimately determine the question of the ideal duration of sustained remission, it will be necessary to compare the results from studies in the early and later stages of illness. No study in long-term schizophrenia has yet examined a time criterion shorter than 6 months. Because the 6-month criterion performed as well under analysis as the 3-month criteria, we would not discourage its continued use especially in the interest of consistency across studies. Our findings may provide impetus for clinicians to work with patients to ensure they maintain at least 3-month remission of positive and negative symptoms with some confidence that this may be a threshold after which good clinical and functional status may be more likely to persist.
In conclusion, this study further supports the validity of the consensus definition of remission in schizophrenia. In FEP subjects, the consensus definition does not appear appreciably better than a definition of 3-month remission of positive and negative symptoms. There is clear evidence that negative symptoms are integral in defining remission as a step toward functional recovery in FEP and that at least 3-month sustained remission of both positive and negative symptoms over the first 2 years of treatment is necessary for a good functional outcome by the end of this period.

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