Mental Status Schedule

Comparing Kentucky and New York Schizophrenics

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Problem

The development of adequate criterion measures for identifying cases of mental disorder to which social and cultural factors can then be related is a continuing and crucial methodological problem. The Mental Status Schedule, a relatively new instrument, was constructed to improve the research value of clinical judgments based on data collected during a psychiatric interview. Two of the authors have reported on this instrument’s reliability and validity. This paper describes the use of this instrument to detect differences in the amount and kind of psychopathology in a sample of urban New York and rural Kentucky hospitalized schizophrenics. A future paper will examine what social-cultural factors may be related to observed differences between the two groups.

Mental Status Schedule

The Mental Status Schedule (MSS) contains an interview schedule and a matching inventory of 248 dichotomous items descriptive of small units of pathological behavior (see Table 1). The interview schedule is a series of questions and statements covering a wide range of psycho-pathology that the interviewer uses to elicit information from the patient. The interviewer records his judgment as to the presence or absence of the pathology described in each dichotomous item by marking it on an answer sheet as either true or false.

The interviewer is permitted to make general probes for more information and may select from the schedule alternative phrasing of questions as well as specific but optional follow-up questions. Thus, while standardized, the procedure has enough flexibility so that, when properly administered, it has the feel of a clinical interview, allowing good rapport between interviewer and patient. At the conclusion of the standardized research evaluation, the interviewer may, if he wishes, conduct an unstructured interview to obtain additional information.

Scoring

We have constructed clinical scales by first deciding which items of the MSS are related to the different clinical dimensions. A few scales have items in common. For example, the items describing persecutory delusions are part of both the Delusional Ideation and the Suspiciousness scale. Next, we decided for each group of items what seemed to be the most appropriate operation for converting the small units of behavior described in the items into scaled values of the clinical dimensions. For most clinical dimensions, certain behaviors by themselves indicate a lower limit of pathology. For example, if a patient keeps expressing hatred or contempt, this by itself indicates at least a moderate degree of anger. On the other hand, any patient who assaul ts the interviewer, even if he showed no other expression of anger, is among the
TABLE 1.—Section From the Mental Status Schedule

<table>
<thead>
<tr>
<th>Anxiety</th>
<th>Anxieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you feel anxious or tense?</td>
<td>15 Admits that he is bothered by feelings of anxiety</td>
</tr>
<tr>
<td>(How much of the time do you feel this way?)</td>
<td>16 Admits he feels anxious practically all the time</td>
</tr>
<tr>
<td>Restlessness</td>
<td>Restlessness</td>
</tr>
<tr>
<td>What about feeling restless?</td>
<td>17 Says he has felt restless or unable to stay still</td>
</tr>
<tr>
<td>Depression</td>
<td>Depression</td>
</tr>
<tr>
<td>How often do you feel depressed or blue?</td>
<td>18 Admits he is bothered by feelings of sadness or depression</td>
</tr>
<tr>
<td>(How much of the time do you feel this way?)</td>
<td>19 Admits he feels depressed practically all the time</td>
</tr>
<tr>
<td>Crying</td>
<td>Crying</td>
</tr>
<tr>
<td>When was the last time you felt like crying?</td>
<td>20 Admits he feels like crying</td>
</tr>
<tr>
<td>Self-appraisal</td>
<td>Self-appraisal</td>
</tr>
<tr>
<td>How do you feel about yourself?</td>
<td>21 Mentions he loves himself or that he thinks he is perfect</td>
</tr>
<tr>
<td>Do you like yourself?</td>
<td></td>
</tr>
<tr>
<td>(When you compare yourself with other people, how do you come out?)</td>
<td>22 Accuses himself of being unworthy, sinful, or evil</td>
</tr>
</tbody>
</table>

For a relatively few dimensions, the scaling operation was merely adding the number of items judged true. For example, the scale Flatness of Affect contains five items, each of which seems of equal importance. The scale value thus ranges from zero, if none of these items is true, to five if all of the items are true.

Population and Procedure

A sample of 100 patients from the New York State Psychiatric Institute and 100 from Kentucky State Hospital were studied (see Table 2). The New York hospital is a 172-bed state mental hospital in the Washington Heights section of Manhattan, New York City. Approximately 25 patients are admitted to the hospital each month, almost entirely from New York City. The urban and heterogeneous racial, religious, and class character of New York City is well known and needs no further description. Eighty-five percent of the admissions are voluntary. Many young patients are selected because they seem suitable for intensive psychotherapy. In recent years, however, the admission policy has tended towards the admission of any patient living in the community of Washington Heights who is in need of hospitalization. The hospital has a university affiliation and a large and intensive residency training program.

The Kentucky hospital is a 1,400-bed state mental hospital, situated five miles from Danville in the eastern Kentucky section of Southern Appalachia. It is the only psychiatric facility for handling inpatients in a 34-county area.

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TABLE 2.—Background Information on 100 Kentucky and 100 New York Schizophrenics

<table>
<thead>
<tr>
<th>Schizophrenic Subgroup</th>
<th>Undiff</th>
<th>Paranoid</th>
<th>Catatonic</th>
<th>Schizo-Affective</th>
<th>Hebephrenic</th>
<th>Simple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kentucky</td>
<td>40</td>
<td>45</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>New York</td>
<td>47</td>
<td>39</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>Religion</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Negro</td>
</tr>
<tr>
<td>Kentucky</td>
<td>56</td>
</tr>
<tr>
<td>New York</td>
<td>74</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Social Class *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age, Yr</td>
<td>M</td>
</tr>
<tr>
<td>Kentucky</td>
<td>32.4</td>
</tr>
<tr>
<td>New York</td>
<td>36.5</td>
</tr>
</tbody>
</table>

According to Hollingshead Two-Factor Index.

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Approximately 120 patients are admitted each month, only 15% being voluntary admissions. There are only two staff psychiatrists for the entire hospital, but much patient care is done by staff physicians and there is a well-organized, multidisciplinary research team of psychologists, social workers, physicians, and nurses. Because of the absence of private psychiatrists or other psychiatric facilities in the area, almost all patients are untreated prior to admission.

The hospital serves a predominantly rural area, including only one city with a population of over 10,000. The main sources of income for the inhabitants are coal mining and small farming. Because of the mechanization of mining, unemployment is chronic and widespread. Public welfare is the sole means of support for 27% of the inhabitants. Membership in organized churches is very low, despite the widespread belief in fundamentalist Protestant doctrine. Only one out of every 25 inhabitants graduates from college and nearly one fifth of the adult population has had less than five years of schooling. The population is approximately 99% white and largely of Anglo-Saxon descent. 6

The patients studied from both hospitals were all consecutive new admissions who were given a primary diagnosis of schizophrenia and showed no evidence of organic brain disease, liver disease, drug addiction, mental retardation, or alcoholism. Patients given a diagnosis of pseudoneurotic schizophrenia were excluded from the sample. All patients were between 16 and 50 years old. The New York (NY) and Kentucky (Ky) samples turn out to be remarkably similar in terms of the schizophrenic subgroups. The Kentucky group has a slightly higher mean number of previous admissions (Ky 1.56, NY 1.37). The groups differ drastically, however, in amount of education and in occupational level. We summarized these according to Hollingshead’s Two-Factor Index of Social Position. 8 This places 88 Kentucky as compared to 38 New York patients in the two lowest classes, IV and V. The New York group has a higher proportion of younger and unmarried patients, somewhat more females and many more Negroes, Catholics, and Jews.

Patients were examined with the MSS within the first two weeks of admission; the vast majority within the first few days. Five interviewers in New York and three interviewers in Kentucky, all of whom had considerable experience with the MSS, conducted the examinations. All interviewers participated in a reliability study which is described under results.

Hypotheses and Anticipated Differences

Based both on a familiarity with the patients in the hospital and the results of pertinent investigations relating to symptomatology and social factors 3, 4, 5, 8, 11, 14 we, prior to patient-examination, made a list of expected differences between the two samples.

We expected that more Kentucky patients would be overtly psychotic, and would exhibit more of the following: (1) apathy and retardation, (2) suspiciousness and paranoid ideation, (3) flatness of affect, (4) denial of illness, (5) overt expression of anger, (6) conceptual disorganization (thought disorder and incoherence), (7) religious preoccupation, (8) somatic complaints, (9) disorders in physical behavior, (10) perceptual distortions (illusions, hallucinations), (11) unkempt grooming, and (12) decreased communication with interviewer.

We expected that the New York patients would exhibit more of the following: (1) anxiety, (2) depression, (3) obsessive-compulsive symptomatology, (4) depersonalization and feeling of external unreality, (5) diminished self-esteem, (6) guilt, and (7) suicidal tendencies.

Results

Overall Differences Between New York and Kentucky Groups.—We analyzed the results by using the 20 scales of the MSS which seemed most applicable to the purposes of this study, and by examining the frequencies of important individual items. Eleven of the twenty scales showed large differences between the two groups *(see Figure). On five scales, we found

*For the analysis of differences on the scaled dimensions, we used a recently developed technique known as “ridit analysis,” see the name being derived from the phrase, “Relative to an Identified Distribution.” This technique calls for identification of one group as a standard and relates the scale distribution of each study group to the scale distribution of the standard. The numerical result of such an analysis is a ridit, which is an estimate of the chance that a patient from a study group is higher on the scale than one from the standard (Footnote continued next page)
significantly greater severity within the Kentucky sample at the 0.05 level. We predicted the direction of the differences in four of these areas: decreased communication, denial of illness, grooming, and perceptual distortions. We were surprised to find any differences in the fifth area, memory and orientation.

The greatest difference between the two groups was found in the Decreased Communication group. A ridget close to 1 means that almost every person in the study group is higher on the scale than anyone from the standard group; a ridget close to 0 means the opposite; and a ridget of 0.5 indicates that a typical patient in the study group is neither higher nor lower on the scale than one in the standard group. Ridget analysis assumes only that the steps of the scale are in increasing order of severity, but otherwise makes no assumptions about equal intervals or underlying distributions. The clinical scales used here satisfy these assumptions. We chose the Kentucky sample as the standard for all the scales since it is a feature of ridget analysis that differences between groups are not affected by choice of standard. We declared ridget differences statistically significant when the 95% confidence limits of the ridget for both groups do not intersect.

The Denial of Illness items indicated that the Kentucky patients more often denied worries (Ky 31, NY 11), claimed they needed no psychiatric help (Ky 62, NY 31), said they needed only rest (Ky 26, NY 8), and believed that their problems were all physical (Ky 18, NY 4).

The Perceptual Distortion items revealed that almost twice as many Kentucky patients had some form of hallucinatory experience (Ky 52, NY 27). Approximately one third of the patients in both groups who were hallucinating reported olfactory hallucinations (Ky 14, NY 30).
12). This surprisingly high figure has been reported elsewhere. It was far more common for a Kentucky patient to act on the basis of his hallucination (Ky 10, NY 1) and to insist on the reality of the experience (Ky 25, NY 5).

Kentucky patients more frequently showed dirty or unshaven face (Ky 12, NY 2) and slovenly clothes (Ky 16, NY 1). They also had greater disturbances in recent memory (Ky 25, NY 5).

Four other scales—Delusions, Suspiciousness, Somatic Complaints, and Abnormal Physical Behavior—also showed more pathology in the Kentucky group, but the differences are significant only at the 0.05 to 0.10 level. It may well be that these differences are real, but that the sample size did not permit the magnitude of the difference to attain statistical significance.

Although approximately the same number in each group had ideas of reference (Ky 20, NY 23), many more Kentucky patients were overtly delusional (Ky 53, NY 37), and either acted on the basis of the delusions or also were preoccupied with them (Ky 9, NY 2). Two specific delusions were far more common in the Kentucky group: a belief that everyone knows of his guilt, faults, or problems (Ky 17, NY 2); and a conviction that people talk about him or stare at him (Ky 31, NY 16).

Suspiciousness and paranoid ideation were more common among the Kentucky patients. More complained about how peers (Ky 25, NY 5), or authority figures (Ky 12, NY 2) treated them, felt pushed around (Ky 20, NY 5), felt rejected (Ky 44, NY 8), blamed others for their difficulties (Ky 44, NY 22), and had overtly paranoid delusions (Ky 42, NY 27).

Although more New York patients indicated that they were bothered by the size or appearance of their body (Ky 10, NY 22), more Kentucky patients complained of numerous aches and pains (Ky 22, NY 10), kept talking about their physical complaints (Ky 12, NY 6), and claimed that they were physically (rather than emotionally) ill (Ky 18, NY 4).

Abnormal physical behavior, such as tremors (Ky 24, NY 11), fidgeting (Ky 20, NY 6) and tic or grimaces (Ky 7, NY 0) were more commonly seen in the Kentucky group. Two patients in each group showed posturing, and no patient exhibited echolalia or echopraxia.

Only one scale, Flatness of Affect, indicated significantly more pathology in the New York group, and this was contrary to our prediction. One other scale, Anger, showed slightly more pathology in the New York group, but the difference is significant at only the 0.10 level. More New Yorkers admitted to often being angry (Ky 8, NY 20) and more engaged in an argument with the interviewer (Ky 0, NY 8).

On the remaining nine scales—Apathy and Retardation, Anxiety, Conceptual Disorganization, Depression, Suicide, Guilt, Elation-Grandiosity, Diminished Self-Esteem, and Obsessive-Compulsive Behavior—the New York group exhibited neither more nor less pathology than the Kentucky group. However, two of these scales, Self-Esteem and Depression, revealed significant differences in the pattern of scaled responses. In the Self-Esteem scale, there were a few more New Yorkers in scale levels 1 through 4, but far more Kentuckians at the highest level, 5 (Ky 21, NY 3). Level 5 is reached when the item, "Indicates he hears voices which threaten, mock, or accuse him," is judged true. Thus, New York patients admit more diminished self-esteem, but Kentucky patients are much more likely to reflect their damaged self-esteem through repression, projection, and accusatory auditory hallucination. This same tendency of the Kentucky patients to show more signs of the severest pathology, while admitting to less of the moderate pathology, is seen in the Depression scale, where more New Yorkers admitted to feeling sad (Ky 54, NY 74) whereas more Kentuckians cried during the interview (Ky 15, NY 6).

The Apathy and Retardation scale shows no overall or pattern difference, yet an important difference between the two groups is revealed by the fact that far more Kentucky patients (Ky 52, NY 30), had the following item true: "Indicates he has no plans for the future other than getting well or leaving the hospital." This item, which does not require introspection and admission of symptomatology, may be the best indicator of apathy for patients, such as those from Kentucky, with much denial of illness.

We decided to categorize a patient as overtly psychotic if he were judged to be either hallucinating, delusional, or incoherent. With this criterion, 70 Kentucky as compared to 57 New

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York patients were so judged; the difference being significant at about the 0.10 level.

As anticipated, more Kentucky than New York patients showed a preoccupation with religion (Ky 16, NY 6). The incidence of feelings of external unreality was the same for both groups (Ky 15, NY 14). Depersonalization was too rare to permit comparisons between the two groups (Ky 1, NY 5).

**Social Class and New York—Kentucky Differences.**—We next sought to determine to what extent the overall New York-Kentucky differences on the 11 scales might merely be a function of the unequal representation of the different social classes. In addition to the problem of whether the individual classes have the same meaning in the two groups, the analysis was further complicated by our need to combine Kentucky classes I, II, and III and New York classes I and II because of the small number of individuals in these groups.

On all scales there were appreciable New York-Kentucky differences at one or more of the class levels. We can therefore infer that on no scale was the overall group difference only a function of the unequal representation of the social classes in the two groups.

There were three scales, Decreased Communication, Flatness of Affect, and Grooming, where the New York-Kentucky differences at each class level are of the same magnitude as the overall differences. For these dimensions the overall New York-Kentucky differences thus seem to be related to differences between the two groups which are entirely independent of social class.

The overall differences on the rest of the scales seemed due to New York-Kentucky differences on some, but not all, classes. For three scales, Delusions, Somatic Complaints, and Perceptual Distortions, the New York-Kentucky differences were mainly due to more Kentucky pathology in class V. Surprisingly, the New York-Kentucky differences on the Denial scale were mainly due to more Kentucky pathology in classes I, II, and III.

**Social Class and Pathology Within New York and Kentucky Samples.**—We examined all 20 scales for a general relationship between social class and amount of pathology within both groups. Fifteen scales showed, in one or both groups, a tendency for patients in the lower-social classes to exhibit more pathology. Only one scale, Anxiety, showed less pathology in the lower classes, and this was limited to the New York group.

**Reliability Study.**—It was not possible for the five New York and the three Kentucky interviewers to get together for the usual reliability study. Therefore, each interviewer listened to and independently evaluated the same set of tape recordings of the MSS interviews of eight representative inpatients. On only three scales was appreciable bias present, i.e., on each of these scales one group of interviewers judged more pathology on the basis of the recorded interviews than the other. The New York interviewers saw more pathology on the Suspiciousness and Conceptual Disorganization scales and less pathology on the Somatic Complaint scales. Had bias not been present in judging suspiciousness, the New York sample might have exhibited even less than was actually observed. However, bias might have been responsible for the finding of more somatic complaints in the Kentucky group. Similarly, the bias on the Conceptual Disorganization scale may have obscured a real difference between the groups, which we had anticipated finding.

Since the Flatness of Affect, Grooming, and Abnormal Physical Behavior scales cannot be judged from audio tape recordings, it is impossible to estimate, for these three scales, the effect of bias on the group differences.

**Comment**

Although for the purposes of brevity we have referred to these two samples as the Kentucky and New York groups, it is important to realize that the populations from which these group samples are drawn are limited to the patients with the criteria specified who are admitted to these two hospitals. Attempts to generalize these findings to all rural Kentucky and urban New York schizophrenics must be approached with caution. For one, the New York sample is from a hospital with a selective admission policy, so that patients admitted are not entirely representative of the mental hospital patient population in New York City. Secondly, in view of the well-known lack of reliability of psycho-
atri diagnosis, we cannot even be sure that what was called schizophrenia is actually the same in Kentucky as in New York. Thirdly, this study has dealt with hospitalized schizophrenics and it well may be that some of the differences found between the two groups are due to differential factors influencing which schizophrenics in both communities become hospitalized.

This study demonstrates that although the MSS was constructed and pretested in a highly urban and cosmopolitan area, it is effective in evaluating patients from varying social and cultural backgrounds. In constructing the interview schedule great efforts were made to word questions so that even individuals with little education or psychological insight could understand what was being asked. Similarly, the items of the inventory were chosen in an attempt to get as comprehensive a coverage of overt signs of psychopathology as possible.

In this study the MSS was limited to hospitalized patients. We are also studying its use as a criterion measure for mental disorder in the general community. Since only two small sections of the instrument are geared to the fact that the interviewee is a psychiatric patient, their omission permits the instrument to be used in examining individuals who are not psychiatric patients.

The MSS, or similarly constructed instruments, differ from the questionnaire and the unstructured clinical interview, two methods frequently used in psychiatric research. With a questionnaire the patient is asked standard questions, and his answers are coded into predetermined categories. If an examiner administers the questionnaire, his task is simply to record the patient's answers. The questionnaire method is mainly limited to detecting psychopathology of which the patient is aware and able to report. A patient generally cannot, for example, report that he is delusional or incoherent. The detection of such behaviors, as well as psychomotor evidence of pathology, requires the judgment of a trained observer conducting some kind of psychiatric interview.

In the usual clinical interview the interviewer is free to explore whatever areas of behavior he thinks are most significant, and to phrase his questions in whatever manner he deems most appropriate for the individual patient. In contrast, the interviewer administering the MSS follows a specific schedule of questions and statements. The use of the same interview schedule for all patients has the research advantage that differences observed among patients tend to reflect actual differences rather than artifacts caused by differences in areas of psychopathology explored or interviewing techniques used. Furthermore, knowing what questions are actually asked gives a framework within which the patient's responses can be understood by persons not present at the interview itself. Similarly, having the interviewer record his judgments in a comprehensive inventory facilitates identification of the specific behaviors that formed the basis of his overall conclusions.

The 20 clinical scales used in this study are tentative. Undoubtedly other investigators using the MSS to study other groups of patients may wish to group the primary information contained in the 248 items in a different manner and thus develop different scales or a different scoring system. However, an objective scoring system, which specifies the operations by which clinical judgments are converted into scaled dimensions, has much merit. It satisfies a prime tenet of the scientific method infrequently observed in psychiatric research that the operations and data upon which conclusions are based should, as far as possible, be publicly specifiable. An objective scoring system also eliminates the variability due to different ways in which clinicians translate primary observations into global judgments. The operations we used in our 20 scales were quite simple, but even the most complicated operations which may prove necessary for handling the primary data in the items of the inventory are now possible with computer data processing.

All too often no attempt is made to measure the magnitude of bias in the judgments upon which all of the research findings rest. The technique used in this study, where all of the investigators evaluated the same set of recorded interviews, is a simple and practical method for determining the presence of group bias. Such bias, if undetected, could produce differences.
where none actually exist or obscure differences which do in fact exist.

The primary data collected in research studies are rarely available for use by other than the original investigators. All of the data in this study—judgments of the 248 items of behavior in the Mental Status Schedule and diagnostic and demographic data—are on 200 score sheets. Data collected in this standardized fashion can thus be made easily available to other investigators, who may be interested in other problems to which the data are relevant, or in organizing the data differently.

Summary

The development of adequate criterion measures of mental disorder is a crucial methodological problem in psychiatry. We described the use of the Mental Status Schedule (MSS), an instrument designed to improve the research value of the psychiatric interview in detecting differences in the amount and kind of psychopathology in a sample of urban New York and rural Kentucky schizophrenics. The Kentucky group showed more psychopathology on 11 objectively scored scales, while the New York group showed more pathology on only two. We discussed some of the research advantages of the MSS over the usual clinical interview or questionnaire.

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REFERENCES