PSYCHIATRIC RESEARCH has made increasing and fruitful use of rating scales to record and measure aspects of mental status elicited during a psychiatric interview. However, recent studies\textsuperscript{1,2,6,12} have demonstrated that the variability of interview procedures accounts for a considerable portion of the disagreement found among well trained observers who perform their own independent interview evaluations. Thus the usefulness of rating scales is limited when there is significant variability in the interview procedures on which the ratings are based. Texts,\textsuperscript{8,11} articles\textsuperscript{3,13} and rating scales\textsuperscript{9,16} dealing with the evaluation of mental status describe the areas that should be covered, but the specific content and order of questions used to elicit the information is left to the discretion of the interviewer. Both experimental manipulation of the interview\textsuperscript{10,14,17} and standardized interview procedures\textsuperscript{4,7} have been used to assess limited aspects of the mental status. However, until now, a standardized interview to assess the major dimensions of mental status, in which the content and order of questions are fixed, seems never to have been reported.

This report describes a new instrument, the Mental Status Schedule, which provides an easily learned technique for simultaneously examining, recording and evaluating the mental status of a psychiatric patient. The patient is examined by means of a standard interview which systematically surveys and probes a wide range of behavior. The evaluation focuses on current behavior and therefore can be repeated to assess changes in patients after treatment. Properly administered, the interview has the feel of a clinical evaluation. However, unlike the usual clinical interview, the use of a specific schedule of questions, a fixed order of presentation, and uniform coverage of the same areas of psychopathology with every patient, make it more likely that differences observed among patients will reflect basic differences rather than differences due to variations in interviewing procedures.

**Description of Mental Status Schedule**

The Mental Status Schedule (MSS) is an eleven-page protocol consisting of two parts: an interview schedule printed on the left side of each page, and a matching inventory of items describing pathological behavior grouped on the right side, opposite the corresponding interview questions (see fig. 1).

The interview schedule consists of eighty-two questions arranged in a definite sequence to provide a natural progression of topics. Fifty-one supplementary questions are provided to clarify or probe into areas where the

\textit{This investigation was supported in part by NIMH grants MH-03546 and MH-08534.}

Comprehensive Psychiatry, Vol. 5, No. 6 (December), 1964
patient's response seems incomplete. The schedule provides alternate phraseology for many questions so that the examiner can ask the question in the form and tense most appropriate to the patient's circumstances and responses.

The accompanying inventory consists of 248 items, i.e., short descriptive statements about the patient. The interviewer records the patient's overt behavior and the quality and content of his communications by marking the items as either true or not true.

The items of the inventory were developed by surveying standard psychiatric texts and by interviewing several hundred psychiatric patients with preliminary forms of the MSS. Whenever a pathological behavior was observed that was not described in an item, construction of a new item was
considered. In the instrument's present form, it is very unusual for a patient to exhibit a significant pathological behavior which is not described in one of the items. Most items were reworded many times until they seemed to reduce ambiguity to a minimum and to achieve maximum agreement among different observers. The items focus on observable behavior only, and do not make any reference to unconscious processes. Technical terms have been avoided in the items and the corresponding concepts have been expressed in simple descriptive language. For example, no item mentions "phobia," although the concept is expressed in the item, "Indicates that he has an irrational fear of a particular object or situation (e.g., crowds, heights)."

The items describe the elementary observations upon which complex clinical judgments are built. Thus, no single item is reserved for "depression," but various items describe behaviors which, taken together, comprise the syndrome; for example, "Admits that he feels depressed or despondent all the time," "Has a sad expression or holds his body in a dejected or despondent posture," etc.

The items are designed to preserve in the protocol the specific observations which might be lost in the overall scaled judgment of the severity of a complex behavior. Such elementary observations can be combined with others to provide evidence for the presence of different clinical entities or dimensions. For example, the item, "Insists that his problems have been primarily physical in spite of the evidence," can contribute to an evaluation of the patient's insight, as well as to an evaluation of somatic preoccupation.

**Administration of the Mental Status Schedule**

To administer the MSS the examiner should be skilled in observation, familiar with psychopathology and able to conduct a standard interview. He should be thoroughly familiar with the questions and statements of the schedule and the items of the inventory. Familiarity with the schedule will permit him to speak in a natural manner so that he does not give the impression that he is merely reading from a questionnaire. Similarly, familiarity with the inventory permits the examiner to proceed rapidly and smoothly. It allows him to focus his attention on the patient's behavior, pausing only long enough to mark the corresponding items while the behavior is fresh in mind.

The examiner marks an item *true* if: the behavior is observed during the interview; the patient describes the behavior as having occurred at any time during the previous week; the behavior, although not occurring within one week, is characteristic of the patient's mode of functioning or is still a problem for him; or if the behavior is a current attitude toward a previous condition or event.

Specific follow-up questions in the schedule appear in parentheses. These are to be used when a previous response seems incomplete or when the patient seems to have further information related to certain items of the inventory. Where a group of follow-up questions appear together, the examiner should choose those questions which are appropriate to the previous response. For
example, if a patient acknowledges thoughts of killing himself, the examiner should then go on to the next follow-up questions: "Have you thought how you would kill yourself?"; "Do you want to kill yourself or commit suicide?"; "Will you try to kill yourself?"

Some of the follow-up questions are designed so that words from the patient’s previous verbalizations may be inserted in the appropriate space, for example, "Does this fear of__________ prevent you from doing anything you want to do?" If the patient has spoken of a fear of crowds, the follow-up would be: "Does this fear of crowds prevent you from doing anything you want to do?"

Certain questions in the schedule offer alternatives, for example, "What (is, was) your occupation?" Whether “is” or “was” is used will depend upon the circumstances. If the patient is a recent admission to a hospital or clinic, the question should be, "What is your occupation?" On the other hand, if the patient is a ninety-year-old man who has resided in the mental hospital for many years, the natural question would be "What was your occupation?" Other questions allow the interviewer to refer to the patient’s circumstances as “illness,” “trouble” or “situation.” By the time he reaches these questions, the examiner will usually know whether the patient regards himself as ill, or merely in trouble or in a difficult situation. The examiner should select the term which seems to correspond with the patient’s conception of his difficulties.

If the interviewer believes more information about a particular topic would be useful, he should prompt the patient by saying, "Could you tell me more about that?", "Is there anything else?", "What do you mean?", or simply, "Tell me about it." On the other hand, with very verbose patients it may be necessary to interrupt by saying, "I see. Let’s move on to something else," or "I can see this is very important to you but let me ask you this. . . ."

A patient may answer a question by referring to his symptoms solely in the past tense. Whenever this happens the interviewer should then ask, "But how do you feel now?" or "Have you felt this way during the past week?" or "Do you feel that__________ is still a problem for you?"

After the purpose of the interview has been explained, the patient is asked his name, age, marital status, occupation, and how long it has been since he came to the clinic or hospital. Questions are then directed at the following areas or topics in this order: original complaint, present problems, mood, worries, fears, anxiety, restlessness, depression, crying, self-appraisal, guilt, response to criticism, interpersonal relations, irritability, anger, ideation, addictions, antisocial impulses or habits, repetitive acts, physical complaints, body image, sex, fatigue, psychomotor activity, appetite, olfactory hallucinations, sleep, thinking, memory, imagination, visual hallucinations, delusions, antisocial attitudes or actions, conception of illness, attitude toward treatment, remote memory, recent memory and orientation.

The patient is then asked to wait while the interviewer marks a group of 74 items which describe behaviors that could have occurred at any point in the interview and which are not associated with specific questions. This group
Table 1.—Description of Six Subscales of the Mental Status Schedule

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Number of Items</th>
<th>Areas of Mental Status Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>52</td>
<td>Appearance, Attitude and Spontaneous Behavior</td>
</tr>
<tr>
<td>2</td>
<td>26</td>
<td>Language and Speech</td>
</tr>
<tr>
<td>3</td>
<td>40</td>
<td>Psychotic Signs and Symptoms</td>
</tr>
<tr>
<td>4</td>
<td>106</td>
<td>Nonpsychotic Signs and Symptoms</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>Sensorium</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
<td>Insight</td>
</tr>
</tbody>
</table>

of items covers the following areas: attention, spontaneous physical behavior, attitude toward interviewer, emotion, rate of speech, quality of speech and language, and quantity of speech. The interview concludes when the interviewer asks the patient, "How do you feel answering these questions?" and then marks four more items relating to the patient's attitude toward the interview. The interviewer should scan the protocol and correct his marking of any item to conform to his final judgment.

Since all of the data are obtained and recorded as the patient is being examined, the evaluation, which generally takes from 20 to 50 minutes, is completed at the same time as the structured interview. The examiner may then continue the interview in any manner he wishes, either to obtain additional data which may be of special interest to him or to initiate the patient into some form of treatment.

**Scoring**

Since each item is a description of a unit of pathological behavior, it is possible to assign a score to a patient by assigning weights to the various items and then summing the weights for the items marked true. In the absence of empirically derived weights for the items, the total score is taken to be merely the number of items marked in the direction of psychopathology, i.e., marked True.

Since two patients may have the same total score, and yet exhibit fundamentally different kinds of psychopathology, there is clearly a need for identifying and measuring the various components of the overall psychopathology. To this end the 248 items have been grouped tentatively into six mutually exclusive subscales, each of which contains items that are related for descriptive purposes. The aspects of the mental status measured by, and the number of items contained in, each subscale are shown in table 1.

Subscale 1 contains items describing the appearance of the patient, his attitude toward the interview and interviewer, and his spontaneous physical behavior. Subscale 2 contains descriptions of the rate, quality, form and quantity of the patient's speech. Subscale 3 contains items indicative of psychosis, such as descriptions of delusions, hallucinations, illusions and perceptual distortions. Subscale 4 contains items which describe nonpsychotic behaviors, such as mood, fears, worries, compulsions, etc. Subscale 5 contains items related to orientation and memory, and subscale 6 contains descriptions of the patient's attitude toward his illness and treatment.
Table 2.—Reliability Coefficients of Total Score on the Mental Status Schedule

<table>
<thead>
<tr>
<th>Study</th>
<th>Number of Psychiatrists</th>
<th>Number of Patients</th>
<th>Reliability Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatric Institute A</td>
<td>3</td>
<td>15</td>
<td>.96</td>
</tr>
<tr>
<td>Psychiatric Institute B</td>
<td>3</td>
<td>16</td>
<td>.97</td>
</tr>
<tr>
<td>Bellevue Hospital A</td>
<td>3</td>
<td>15</td>
<td>.92</td>
</tr>
<tr>
<td>Bellevue Hospital B</td>
<td>2</td>
<td>21</td>
<td>.92</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>67</strong></td>
<td><strong>.94</strong></td>
</tr>
</tbody>
</table>

An alternative approach to scaling based on the pattern of items grouped according to clinical dimensions is also being attempted, and some preliminary results have been reported.\(^1\)

**Reliability**

Since a patient is characterized by the number of items marked true, rather than by the pattern of responses on specific items, reliability was determined by examining agreement among different observers on both total and subscores. Two or three psychiatrists were present at every interview. Each observer filled out a Mental Status Schedule on the patient and agreement among observers was then computed by intraclass correlation.\(^5\)

Four separate reliability studies have been conducted, two at the New York State Psychiatric Institute and two at the Psychiatric Division of Bellevue Hospital. A total of 67 adult patients were examined, each within two months of admission. Because the only criteria for selecting patients for these studies were that they spoke English and were capable of being interviewed, the patients seen exhibited a wide range of psychiatric disorders and thus were representative of patients typically found in mental institutions. Each study involved a different team of two or three psychiatrists. Except for the senior author, the other observers in these studies were resident psychiatrists, with an average of slightly less than two years of training. The members of the team made simultaneous but independent observations, taking turns as interviewer.

The reliabilities of the total scores obtained in these studies are summarized in table 2. Each study yielded a high reliability coefficient, the mean being .94. The reliability coefficients for the six subscale scores were also determined from these studies and are presented in table 3. It is clear that the reliabilities are high for all except subscales 2 and 5. Since this division of the items into six subscales is only tentative, these reliabilities may be considered adequate for the rough descriptive purposes envisaged.

**Validity**

The power of the total score and subscores to discriminate between groups known to differ in severity and extent of psychopathology was tested empirically by examining four groups of patients. The groups were: 1) a random sample of newly admitted patients to the New York State Psychiatric Institute; 2) a sample of patients accepted for out-patient psychotherapy at the Columbia-Presbyterian Medical Center; 3) a sample of former patients who had
been hospitalized five years previously at the New York State Psychiatric Institute, all but one of whom were currently living in the community; and 4) a sample of hospitalized patients on the Orthopedic Service of Presbyterian Hospital who, for the purposes of this study, constituted a hospitalized control group.

It was anticipated that hospitalized mental patients would tend to have the highest scores; the medical, or control group, the lowest scores; and outpatients and former patients scores between the two extremes. The results appearing in Table 4 confirm these expectations.

Some psychopathology was exhibited by the control group, some of whom seemed to be suffering from personality disorders and mild psychoneurotic conditions. However, the extent of overt psychopathology was well below that of the other groups whose members had at one time or another required psychiatric treatment. As might be expected, the mean for the outpatients was very close to the mean for those formerly hospitalized, the difference being 1.20. Marked differences were found, however, on the six subscales (see Fig. 2).

The former hospitalized patients tended to have uniformly higher scores than the outpatients on every subscale except 4, which contains items that are not as indicative of severe psychopathology as are the others. Thus, the instrument reveals that even five years after admission to the hospital, former hospitalized patients still exhibit signs of serious psychopathology not seen in patients accepted for outpatient psychotherapy.

To determine the extent of agreement between the score on the MSS and a clinical evaluation of severity of illness, 17 formerly hospitalized patients were each interviewed separately by two psychiatrists. One always administered the MSS, while the other, an experienced clinical psychiatrist, always con-
Fig. 2.—Mean per cent scores* on subscales of the Mental Status Schedule for four groups of patients.

*Items marked True as per cent of items in subscale.

ducted an unstructured interview. Neither psychiatrist knew the course or results of the other’s examination. The psychiatrist who conducted the unstructured interview ranked the 17 patients on the basis of his overall clinical impression of severity of illness. This ranking was compared with the ordering of patients determined by the total score on the MSS, and the Spearman coefficient of rank correlation was found to be .82. Thus the magnitude of the total score is highly related to the severity of illness as defined by expert clinical judgment.

To test the sensitivity of the instrument to changes in the status of a patient, forty-five adult patients newly admitted to the New York Psychiatric Institute were each administered the MSS upon admission and again 10 weeks later. The measure of change was taken to be the difference between the patient’s initial and follow-up score. An independent clinical evaluation of change was
Table 5.—Mean Change Scores for Patients Distributed in Three Groups According to Clinical Impression of Change

<table>
<thead>
<tr>
<th>Clinical Evaluation of Change</th>
<th>Number of Patients</th>
<th>Mean Decrease on MSS Score *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatly improved</td>
<td>16</td>
<td>19.7</td>
</tr>
<tr>
<td>Slightly improved</td>
<td>22</td>
<td>11.8</td>
</tr>
<tr>
<td>Not improved</td>
<td>7</td>
<td>9.3</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>14.2</td>
</tr>
</tbody>
</table>

*F-ratio for difference among means = 3.61, p < .05.

obtained by having the resident psychiatrist who was treating the patient rate, on a five-point scale, his clinical judgment of the degree of improvement exhibited by the patient over this period. The categories of change on this scale were: greatly improved, slightly improved, no change, slightly worse and much worse.

On the average, patients judged clinically to have improved greatly also had the greatest change in score; patients who improved only slightly changed less; and patients judged not to have improved had the smallest mean change (see table 5). Thus, the score on the MSS appears to be sensitive to changes in the status of hospitalized patients, with the magnitude of the difference in score corresponding to the clinical judgment of degree of improvement.

**COMMENT**

Many clinical psychiatrists with extensive training and experience in interview techniques are reluctant to employ a standard interview because of a belief that adherence to a schedule of questions would seriously interfere with patient-doctor rapport. It has been found with the Mental Status Schedule, however, that when the interviewer is sufficiently familiar with the instrument so that he can read the questions in a natural manner, and when he expresses an attitude of interest and warmth, then almost all patients readily accept the adherence to an interview schedule. When patients do complain about the interview, it is rarely to the standardized procedure that they object, but rather to their being asked any questions at all. Of over 600 hospitalized psychiatric patients interviewed with the MSS, many of whom were extremely disturbed, only seven refused to complete the interview. These seven patients were so paranoid, negativistic or agitated that it is unlikely that any of them would have completed any kind of interview evaluation.

The use of this instrument to reinterview patients one or more times might be approached with some hesitancy, as it may be felt that patients will resent being asked the same questions. However, experience in reinterviewing many patients after a period of only three to four weeks, some of them as much as three or four times, has shown that if the need for a reevaluation is explained, the patient will generally accept the experience with good grace. In fact, most patients were either unaware that they had been asked the same questions previously, or remembered only a few of them.

Although a skilled clinician might often uncover more psychopathology for the individual patient with an unstructured interview, if another interviewer
conducted his own unstructured interview, he would likely elicit, at least in part, different behaviors and arrive at a different estimate of the extent of the illness. The use of a structured interview, as employed in the MSS, ensures that if different psychiatrists examine a patient, they would tend to elicit the same behaviors. On numerous occasions, moreover, evaluation with the MSS has elicited significant psychopathology, e.g., olfactory hallucinations, hand washing compulsions or obsessive thoughts, which was not revealed in the clinical evaluation by the admitting psychiatrist, merely because the patient was not asked the appropriate questions.

The results of the reliability studies indicate that a wide spectrum of psychopathology is made available to observation and is accurately recorded. This is in large measure due to the absence of technical terminology in the items of the inventory. The training of interviewers revealed that although quick agreement could be reached on the marking of an item once the actual behavior of a patient during the interview was recalled, it was far more difficult to reach agreement when the behaviors were categorized by the corresponding technical terms. For example, it is relatively easy to agree on whether the patient "Keeps adding details to his explanations so that responses become over-elaborated," but not all observers agree that this is what is meant by the term "circumstantiality." The recording of his judgment for most of the items by the observer as the behavior occurs also contributes to the high agreement between observers. The observer does not have to rely so heavily on his memory as when an inventory or rating scale is filled out after completing an examination.

The MSS can be administered to patients who are too disturbed to fill out self-rating inventories or to undergo psychological testing. Its design enables it to be used on patients in a variety of settings, for example, in a mental or general hospital, in an outpatient clinic or in the community. It is thus possible to maintain follow-up of a patient whether his condition deteriorates and he remains hospitalized or he improves and reenters the community.

The ease of administration and the absence of technical terminology permit even relatively inexperienced psychiatrists to make proper use of the instrument. Furthermore, the evaluations of patients obtained by different examiners can be compared quantitatively without inaccuracies due to different interviewing procedures.

The ability of the scores to discriminate between groups of patients of varying severity of illness implies that the instrument may be useful as a screening device to identify those most in need of help in a group of individuals seeking psychiatric treatment. With slight modifications, the instrument could be used in epidemiological surveys of general populations. The sensitivity of the score to changes in mental status indicates that the instrument could be useful in evaluating a particular treatment regimen or in comparing different treatments. Where a therapy is aimed at alleviating specific aspects of the mental status—for example, depression—a subscore can be derived based only on those items which are related to the behaviors of interest. For example, 38 items relate to depression and 10 items to inappropriate or flat affect. This
facilitates detection of significant changes in certain aspects of behavior which would be lost if attention were directed only to overall changes. Thus, the MSS can be used in double blind studies because neither the patient nor the examiner need know the specific aspect of the mental status which is being studied. The MMS, together with instruments which evaluate other areas of functioning, both current and historical, should be useful in the objective determination of diagnosis and prognosis.

The problem of converting clinical judgments of pathological behavior into quantitative terms is complex. There is a need for more sophisticated statistical procedures for scoring and particularly for the development of standardized subscales. The appropriate procedures are factor analyses of single items or groups of items, differential weighing of items, discriminant function analyses, etc. All these techniques depend for their accuracy on the availability of large representative samples. As the necessary data become available, the programs for these more elaborate statistical analyses will be put into effect.

**Summary**

This paper presents a new instrument, the Mental Status Schedule, which is an easily learned technique for simultaneously examining, recording and evaluating the mental status of psychiatric patients, and for obtaining a quantitative estimate of the severity of pathology. The patient is examined by means of a structured interview which surveys and probes a wide range of behaviors which are recorded in a matching inventory of 248 items. Properly administered, the interview has the feel of a clinical evaluation. Various subscores can be derived to evaluate specific areas of behavior. The studies reported indicate that a patient’s score is reliably recorded and that the instrument is sufficiently sensitive to be useful in the evaluation of therapy.

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