On Trends in the Diagnosis of Schizophrenia

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A reexamination of hospital diagnoses made at New York State Psychiatric Institute in 1932–1941 and 1947–1956 (64 in each decade) indicated that the original diagnosticians used a broader concept of schizophrenia in the second decade (77 percent of the 64 cases) than in the first (28 percent). Rediagnoses by 16 American-trained psychiatrists showed practically no change between the decades (42 and 47 percent), while a British-trained psychiatrist rediagnozed more cases of schizophrenia in the first decade (31 percent) than in the second (19 percent). The authors believe these differences may be due to a decrease in the number of "hard-core" schizophrenics while the number of "ambiguous" schizophrenics increased, inviting more diagnoses of schizophrenia by those with a broader concept of schizophrenia.

This study is part of the work of the U.S.-U.K. Cross-National Study of Diagnosis of the Mental Disorders (1, 2). The findings of this project on differences between U.S. and U.K. psychiatrists in their operational concepts of schizophrenia have been published elsewhere (3, 4). Psychiatrists working in New York public mental hospitals appear to have a broader concept of schizophrenia than do their colleagues in London. Studies by videotape have shown the generality of this comparison for other psychiatrists and regions in the United States and the United Kingdom (5–7). Thus regional and cross-national differences in the prevalence of diagnostic groups may not actually reflect differences in patients' conditions, but rather in the psychiatrists' training and their particular concept of any one disorder. We were interested in knowing when these differences in diagnostic habits had developed. We chose to examine two psychiatric hospitals, one in New York—the New York State Psychiatric Institute—and one in London—the Maudsley Hospital. Both are associated with institutes that are regarded as highly influential in the training and orientation of psychiatrists.

The proportion of patients diagnosed as schizophrenic by the psychiatrists in each of those institutions was similar in the 1930s—about 20 to 30 percent (figure 1). However, a dramatic change had developed by 1952. Whereas at Maudsley the proportion of patients diagnosed on admission as schizophrenic had remained fairly constant across the years, at the New York State Psychiatric Institute (PI) it started to increase rapidly in the 1940s and reached a peak in about 1952. At this point nearly eight out of ten admissions were diagnosed as schizophrenic. The question was raised whether this increased proportion reflects temporal changes in the kinds of patients admitted or is an artifact of changes in the concept of schizophrenia used at PI to identify those cases. The present study arose out of this question.

One way to examine this question was to rediagnose the patients on the basis of their case reports. Fortunately, the case reports at PI are exemplary: the format has remained relatively constant over a period of 40 years and the notes were extraordinarily complete, with extensive verbatim accounts of patients' complaints and meticulous details of symptoms, behavior, and psychiatric history.

We selected for rediagnosis the case records of patients who were admitted to PI during two decades, 1932–1941 and 1947–1956. The first decade was chosen because the hospital records indicated that the proportion of patients at PI diagnosed as schizophrenic was low (in fact, similar to the corresponding proportion at Maudsley), whereas in the second decade it had more than doubled.

Method

A sample of 64 case records of patients admitted to PI was selected from each decade; see appendix 1 for the procedure used. The two samples reflected the dramatic change in the proportion of schizophrenics, according to hospital diagnoses, between the two decades.

Patients were selected only from the age group 20–59 years. Patients who had been previously admitted to PI were excluded so that all hospital diagnoses would have been made for the first time in the decade under question.

Sixteen North American psychiatrists acted as rediag-
KURIANSKY, DEMING, AND GURLAND

FIGURE 1
Percentages of Patients Diagnosed as Schizophrenic Among Admissions* to the New York State Psychiatric Institute and to Maudsley Hospital, London

* Total admissions, including readmissions; separate profiles for first admissions and readmissions are only available for 1934-1937 and are nearly identical.

nosticians (RDs) of the cases. The prerequisites for selection of the RDs were that they had had several years of practice in full-time psychiatry beyond residency training and that they were not known to have an "idiosyncratic" diagnostic orientation. An effort was made to obtain RDs from different clinical settings.

The various RDs' current professional activities included research, teaching, private practice, and clinical affiliations with psychiatric hospitals. They had had from three to 45 years of experience in psychiatry in North America beyond residency training (median: 13 years). Thirteen of the 16 RDs had received their training (first four years of full-time psychiatry) entirely in the United States (seven of these at PI). The remaining three had received at least a part of their training in Germany (one of these also in Canada). Only one of the RDs had had any training in or practice of psychiatry in England (for one year only). Four of the RDs had been affiliated with PI during the decades under study (two of these during one year only), but they had not at that time personally examined or diagnosed any of the patients in the sample.

It was our intention to make available to the RDs all information known to the original hospital diagnosticians (ODs) that presumably influenced the latter's diagnostic decision, but not to reveal that decision itself. The RDs were accordingly presented with Xerox copies of the complete case reports (e.g., clinical summary, anamnesis, progress notes) from which we had obliterated all references to hospital diagnosis, specific treatment regimen, or year of admission. They were asked to record for each patient a main diagnosis covering the patient's predominant condition and, when applicable, subsidiary diagnoses covering additional conditions of the patient and alternative diagnoses covering alternate choices when the main diagnosis was in doubt. All diagnoses were based on the glossary in DSM-II. The RDs were also asked to make ratings, on a set of four-point scales, of their confidence in their main diagnosis, opinion on the strength of evidence for or against a diagnosis of schizophrenia, and satisfaction with the completeness and adequacy of the case notes in allowing judgments leading to a diagnosis.

In addition, all 128 cases were rediagnosed by one of the authors (B.J.G.). His training had been at the Maudsley. He had had ten years of experience beyond residency and had been involved in clinical research primarily in the area of psychiatric classification. He too had had no prior personal contact with the patients in the study. He followed the same procedure for making diagnoses as that outlined above for the RDs. Rediagnosis of all cases by B.J.G. produced a description of the entire sample for both decades based on a uniform set of diagnostic criteria.

It is important to note that the psychiatrists making re-diagnoses used consistent diagnostic concepts in diagnosing the cases from both decades. They diagnosed equal numbers of cases from both decades and based all their diagnoses on terms in the same glossary. Thus, any differences that would be found in the proportion of schizophrenics over the decades for a given RD would not be due to differences in his concept, which presumably remained constant, but to differences in the patients. On the
RESULTS

Figure 2 shows the number of cases diagnosed as schizophrenic by the various groups of psychiatrists (ODs, RDs, and B.J.G.) for the two decades. The diagnoses by the ODs show a dramatic increase between the two decades in the proportion diagnosed schizophrenic, i.e., from 18 out of 64 cases (28 percent) in the first decade to 49 out of 64 (77 percent) in the second decade. In significant contrast, rediagnoses by the 16 American-trained RDs show practically no change in the proportion diagnosed as schizophrenic over the two decades, i.e., 27 out of 64 cases in the first decade and 30 out of 64 in the second. Rediagnosis by the British-trained psychiatrist (B.J.G.) also failed to show an increase in the number of schizophrenics over time. Since the criteria for rediagnosis were consistent across the two decades, it follows that the criteria for the hospital diagnosis of schizophrenia became broader in the second decade than they had been in the first.

Other results are consistent with the diagnostic differences noted above. Taking alternative diagnoses (wherever such were available) into account did not change the relative proportion of cases of schizophrenia between the two decades as diagnosed by either the RDs or B.J.G. The RDs considered schizophrenia as an alternative diagnosis for an equal number of cases (i.e., three) in each decade, given a main diagnosis in a different category, and also offered an alternative diagnosis in a different category from the main diagnosis of schizophrenia in an equal number of cases (i.e., four) from each decade. Similarly, B.J.G. considered schizophrenia as an alternative diagnosis for eight cases in the first decade and five in the second, given a different main diagnosis, and offered a different diagnosis as an alternative for schizophrenia in six cases in the first decade and four in the second. Therefore, the net result of the number of schizophrenics they diagnosed in each decade, as well as the difference in proportion between the two decades, remains the same as that for their main diagnoses alone. Similarly, taking subsidiary diagnoses into account did not affect the proportion of cases diagnosed as schizophrenic in each decade by either the RDs or B.J.G.

Table 1 gives further support to the diagnostic differences found among ODs, RDs, and B.J.G. Both the 16 RDs and B.J.G. were at least reasonably confident in their diagnoses and satisfied with the case records in a similar proportion of cases in both decades. Thus the differences in the proportion of cases diagnosed as schizophrenic over the two decades by the RDs and B.J.G. cannot be accounted for by corresponding differences in the rediagnosticians' confidence in their diagnoses, nor in their satisfaction with the records.

We had anticipated that all psychiatrists making rediagnoses—both the RDs and B.J.G.—would differ from the original hospital diagnosticians in their estimate of the relative proportion of cases of schizophrenia in the two decades, since the RDs and B.J.G. were by design consistent in their diagnostic criteria across the two decades, whereas the ODs were not necessarily so. We had also anticipated that the RDs, who were predominantly American-trained, might differ from B.J.G. in the level of schizophrenia diagnosed within each decade, since we already knew that a British-trained psychiatrist tended to use a narrower concept of schizophrenia than his American colleagues. However, we had not anticipated that B.J.G. would differ from the RDs in the relative proportion of cases of schizophrenia in the first and second decades, i.e., that he would find a decrease in the second decade. This decrease in the proportion of cases of schizophrenia over the two decades indicated by B.J.G.'s British-oriented diagnoses suggests that some changes in patients may have taken place.

Figure 3 shows the relative proportion of cases from both decades diagnosed as schizophrenic by the RDs and B.J.G. The overlapping areas within the circles represent those cases in which both the RD and B.J.G. agreed that a given patient was schizophrenic. There was relatively little disagreement between the RDs and B.J.G. on the identification of cases of schizophrenia in the first decade.
TABLE 1
Rediagnosticians' Ratings of Confidence in Diagnosis and Satisfaction with Records

<table>
<thead>
<tr>
<th>Item</th>
<th>16 Rediagnosticians</th>
<th>B.J.G.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Decade (N=64)</td>
<td>Second Decade (N=64)</td>
</tr>
<tr>
<td>Confidence in diagnosis*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quite confident</td>
<td>27</td>
<td>12</td>
</tr>
<tr>
<td>Reasonably confident</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>Not very confident</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Not at all confident</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Satisfaction with records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quite satisfied</td>
<td>29</td>
<td>17</td>
</tr>
<tr>
<td>Reasonably satisfied</td>
<td>22</td>
<td>31</td>
</tr>
<tr>
<td>Not very satisfied</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Not at all satisfied</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>
* The columns in this section do not total 64 because of incomplete data from raters.

TABLE 2
Demographic Characteristics of the Patient Sample in Each Decade

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>First Decade (N=64)</th>
<th>Second Decade (N=64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Women</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29 years</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>30-39 years</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>40-59 years</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>36</td>
<td>38</td>
</tr>
<tr>
<td>Married</td>
<td>26</td>
<td>22</td>
</tr>
<tr>
<td>Divorced</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Widowed</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>63</td>
<td>62</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Previous admissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>51</td>
<td>55</td>
</tr>
<tr>
<td>One or more</td>
<td>13</td>
<td>9</td>
</tr>
</tbody>
</table>

The results indicate that the ODs at PI in the second decade used a broader concept of schizophrenia than the ODs at PI used in the first. In other words, the operational concept of schizophrenia at PI changed between the two decades. Also, the clinical conditions found among patients in the second decade were probably different from those in the first decade, though not to the extent suggested by the original hospital diagnoses.

On the basis of these observations, we propose the following hypothesis. Patients can be divided into two groups. Those in group S are generally agreed to be schizophrenic by all diagnosticians, regardless of their criteria. Those in group X constitute an ambiguous heterogeneous group, presenting difficult differential diagnoses. They may present symptoms characteristic of several disorders or just not fit neatly into one category or the other. In these cases observer bias probably influences the choice, i.e., they are called schizophrenic by psychiatrists with a broader concept of schizophrenia.

We postulate that between the two decades group S (the "hard-core" schizophrenics) diminished somewhat in number, while group X (the "ambiguous" schizophrenics) increased, inviting more diagnoses of schizophrenia by anyone with a broader concept. However, the concept of schizophrenia used by the ODs changed so much between the first and second decades that, although patients in the borderline group were not diagnosed as schizophrenic in the first decade, most of them were so diagnosed in the second decade. This would explain why schizophrenia appeared to decrease across the decades according to
B.J.G’s diagnoses (i.e., on the basis of a narrow concept, since B.J.G. is British-trained), to remain stable according to the RDs (i.e., on the basis of their somewhat broader American concept, since the increase in “ambiguous” schizophrenia compensated for the decrease in “hard-core” schizophrenia), and to increase dramatically according to the ODs (whose concept of schizophrenia broadened considerably over time).

This study shows that the use of consistent diagnostic criteria over time is crucial for comparing patients over time. Reliable patient comparisons over time are important for clinicians, to allow them to identify new syndromes, to consult past literature or senior colleagues, or since B.J.G. is British-trained, to remain stable according to time. Reliable patient comparisons over time is important for comparing patients over time. And finally, the reliable identification of patient groups over time is important for researchers, to allow them to develop family case histories for genetic studies, to trace changes in prevalence rates, and to evaluate the impact of treatment programs.

ACKNOWLEDGMENTS

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APPENDIX

Statistical Procedures

The samples of patients for rediagnosis, 64 in each decade, were selected by a procedure known as Plan H (1). The advantage of this plan is that the final sample very nearly reproduces the proportions of hospital diagnoses grouped under the three broad categories of schizophrenia, affective disorders (all subtypes of major affective disorders listed in DSM-II), under DSM-III by section 296, as well as psychotic depressive reaction and depressive neurosis, and other (all diagnoses not included under schizophrenia and affective disorders, e.g., neuroses, personality disorders, organic syndromes) during the decade from which that sample was drawn. Moreover, this diagnostic distribution is maintained as close as whole numbers permit among the four patients from each decade assigned to each rediagnostician. This is accomplished by starting off with a preliminary sample that is several times the size of the final sample. The larger sample has a better chance than the smaller (final) sample to reproduce the proportions in the hospital records. The steps in the procedure follow.

Step 1. Calculate on the basis of sampling theory and putative results the optimum ratio for the size of the preliminary sample to the size of the final sample for rediagnosis. The calculations showed that this ratio might well be 3:1 or 4:1.

Step 2. Using random numbers, draw the preliminary samples from the hospital records for the two decades. This is easy to accomplish, since admissions are numbered consecutively. A random number in the interval between the opening number of a decade and the closing number identifies and selects uniquely some particular patient.

Step 3. Discard from the preliminary sample the patients who were under 20 or over 60 years of age on admission.

Step 4. Adjust the sizes of the remaining preliminary samples so that each is a multiple of 64 (size of the final sample). This is done by drawing more cases from the preliminary sample or by discarding some, always using random numbers.

Step 5. Classify each preliminary sample into three strata defined by the hospital diagnosis: schizophrenia, affective disorder, other. Maintain within each stratum the order in the original file.

Step 6. Label the patients in the preliminary sample for the first decade A, B, C, D, A, B, C, D, and onward from start to finish; each of the four letters appears 64 times. Label those in the second decade A, B, C, A, B, C, and onward; each of the three letters appears 64 times.

Step 7. Select the B labels from each decade for the final sample for rediagnosis.

Step 8. Order the 16 psychiatrists 1 to 16 by random numbers.

Step 9. Number the patients with B labels 1, 2, 3, up to 16. Patients labeled 1 are for Psychiatrist No. 1, patients labeled 2 are for Psychiatrist No. 2, etc. This plan distributes to each psychiatrist patients from each decade with diagnoses of schizo-
PHENOMENON.

Step 10. Each psychiatrist now has eight patients, four from each decade. This is the final sample. Randomize the order of these eight patients.

Step 11. Make Xerox copies of the case records in the final sample. Obliterate every word that could betray the diagnosis, reasons for diagnosis, or year of admission.

Step 12. Deliver the proper package of eight records to each psychiatrist for rediagnosis.

Step 13. Compile the results and draw statistical inferences.

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DISCUSSION

W. ROBERT BEAVERS, M.D. (Dallas, Tex.)—The authors’ first finding relates to the marked variation in the diagnosis of schizophrenia in an American hospital in the 30-year period from the 1930s to the 1960s; the incidence went from some 30 percent to a peak of nearly 80 percent in the early 1950s and dropped off to around 50 percent in the late 1960s. It was interesting to compare this curve with data from Timberlawn Psychiatric Hospital, a southwestern private psychiatric hospital (1), in which a tabulation of 13,050 first admissions indicated a percentage of schizophrenic diagnoses in 1933 of 12 percent, in 1943 of 33 percent, in 1953 of 67 percent, and in 1963 down to 43 percent, a curve very close to the one found at New York State Psychiatric Institute.

This is further verification that the authors’ finding is relevant to other parts of the United States. Some of the factors involved in this phenomenon that the authors considered important include more atypical schizophrenic patterns in the later population, changing patterns of criteria for diagnosis, and, in addition, differences in admission policies, alternatives for care in the community, and treatment possibilities elsewhere in the community.

I would like to suggest another factor that is, in my opinion, significant in incidence rates of schizophrenia, namely, that it varies more than one person to make a schizophrenic (2) and that the interactions of patient with helper at the time of diagnosis (as well as before and after) greatly influence the symptomatology considered important in the diagnosis of the schizophrenic syndrome. If this is indeed the case, then the relationship between the patients’ social class, ethnic background, and general world view and those of the diagnosing physicians will be a significant factor in the apparent prevalence rate of schizophrenia in a given setting.

The reason for this is that comprehensibility is a very marked factor in the probability of diagnosing a patient as schizophrenic. If he seems to be comprehensible, he is less likely to be labeled schizophrenic. This comprehensibility is a two-way street, a result of the interaction between patient and helper, a unique concept in addition to any intellectual concepts of schizophrenia that the clinician may possess. Faris and Dunham in their classical 1939 study (3) first found a much higher incidence of schizophrenia in the lowest economic classes, although Dunham in 1965 (4) challenged his own assumptions, rejected this prior interpretation, and focused on such factors as the extreme competitiveness of an open-class society as contributing to the development of schizophrenia.

The degree of alienation of the hospital environment needs to be considered in epidemiological studies of the incidence of schizophrenia. I am concerned lest we make our epidemiological approach a one-sided focus on the patient half of the patient-helper interaction and then assume that shared concepts about symptoms will inevitably increase the accuracy of the labels applied to patients.

“Bizarreness of thought” (which decoded means the verbal production of the patient in his interactional feedback loop with helpers) is highly correlated with the type and the quality of the listener. In a recent paper (5) I attempted to make this point by suggesting that “sophisticated and intuitive evaluators learn to correct for their major social deficiencies and to be aware that, for example, a middle-class, midwestern, Protestant physician internin in Bellevue in New York City must be extremely careful in calling another person schizophrenic because of communicative difficulty, if that person is an overweight Catholic, Puerto Rican, lower-class woman speaking of religious concerns.”

If we are to sharpen epidemiological studies I would suggest that accurate descriptions of social class, occupation, and ethnic backgrounds of both the patient and the diagnosing physician may provide a way (perhaps a crude way, but a beginning) of reaching into this dynamic interaction statistically. Gurland and associates, in a previous paper (6), compared patient records in Brooklyn State Hospital in New York and Netherne Hospital in London and developed profiles of symptoms to evaluate the patients. They noted that difficulty in achieving diagnostic agreement was seen for those patients who had a large affective component and only modest thinking difficulties. London psychiatrists tended to call this type of disorder an affective disturbance, while Brooklyn psychiatrists tended to diagnose it as schizophrenia. It is possible that English hospitals have a less alienated milieu, are more familiar with the nuances of their patients, and do not see eccentricities as evidence of “thinking disorder.” The in-hospital relationships strongly affect the style and manner in which a patient communicates.

It has been said that Freudian patients dream Freudian dreams, that Jungian patients dream Jungian dreams, and that Rogerian patients dream not at all! Perhaps this suggests the reality of the interactional feedback loop in developing the symptoms presented by the patient. Rosenhan, in a recent article, “On Being Sane in Insane Places” (7), described the extreme significance of interpersonal factors in diagnosis and offered compelling evidence of the degree of alienation between staff and patient in even “very good” U.S. mental hospitals.

If epidemiological studies include this dimension of alienation in their considerations, I believe they will continue to be a boon to the efforts of psychiatrists. If we ignore that half of the relationship and encourage the assumption that thinking disorder or bizarreness is an absolute, unaffected by the relationships that exist while the diagnosis is being made, we may find that we are attempting to catch a rainbow with a bucket. The authors have made a strong case that variations in diagnosis occur because of conceptual differences. I suggest an added dimension related to the quality of the relationships both at the time of admission to the hospital and subsequently.

To paraphrase Pogo, “We have met the patient and he is us.”

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