Depression in New Haven, 1975-76:
An Epidemiologic Study

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Results of a 1975–76 community survey of psychiatric disorders conducted in New Haven, Connecticut, are presented. These results represent the first application of new research diagnostic techniques to a community sample and demonstrate that major depression is the most common psychiatric disorder with a current prevalence rate of about 4 percent. Most persons with a diagnosis of major depression did not seek treatment from a professional for an emotional problem; few saw a psychiatrist or were hospitalized. They were, however, high attenders of nonpsychiatric physicians for problems they did not identify as emotional, and the majority used psychotropic drugs but usually not a tricyclic antidepressant. The scientific and policy implications of these findings are discussed.

Psychiatric epidemiology in the United States currently is being influenced by developments in genetics, psychopharmacology, neurobiology, and particularly psychopathology [1]. Recent improvements in the definition and reliability of psychiatric diagnoses are now being applied to studies of psychiatric disorders in the community. The integration of these developments with the methodologic precision that characterized the community studies of the 1950s and '60s promises to provide new knowledge on the epidemiology of mental disorders. These developments are already having implications for professional practices in medicine and public health, and for public policy in the planning of mental health services, training, and research.

This paper will present results from a community survey conducted in 1975–76 in New Haven, Connecticut, representing the first application of the new research diagnostic techniques to a community sample in the United States. The focus will be on depression, because this was the most common psychiatric disorder found in the community and because it is of current scientific, therapeutic, and public health interest. Other reports have described the full findings [2,3,4]. Here we will describe the current prevalence rates of depression; how these rates vary by a person's age, sex, and social class; and the type and quantity of treatment received for these disorders.

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The latter data will demonstrate that, in fact, most depressions are untreated and that persons with depressive disorders make high use of the health care, but not of the mental health care, system.

Community studies of treated and untreated cases have a long history in this country, beginning at the turn of the century. By now, more than eighty such studies have been undertaken [2].

Prior to World War II, cases were frequently counted by indirect procedures, such as interviews with community leaders, or by the use of agency records and psychiatric judgments to determine whether subjects were cases and what diagnoses were appropriate.

Following World War II, psychiatric epidemiology in the United States took a different direction, and there resulted a surge of community surveys. The postwar studies shared at least three common characteristics: an avoidance of specific diagnoses, exclusive concern for social factors, and considerable concern about diagnostic unreliability.

THE AVOIDANCE OF SPECIFIC DIAGNOSES

Psychiatric epidemiology during the past thirty years was dominated by a Meyerian view of mental illness. Mental disorders were viewed as unitary, and there was a belief that various diagnostic groups were superficially different manifestations of the same underlying defect in mental functioning. Mental illness, it was believed, fell along a gradient from no symptoms to some maximum number.

The American studies of this period used nondifferentiated severity measures of psychiatric impairment, usually a list of twenty or more symptoms which were scored and developed as an index of mental status, independent of specific diagnoses. Examples of the questions used to develop this index were: "Do you ever feel that you have trouble in getting to sleep?" "Do you feel you are bothered by all sorts of pains or ailments in different parts of the body?"

This use of overall impairment scales, rather than diagnostic, or categorical grouping or symptom dimensions, was introduced into psychiatric morbidity surveys by several American investigators (e.g., MacMillan in the Nova Scotia studies [5,6]; Langner in the Midtown Manhattan study [7,8]; and Gurin in a nationwide survey of American mental health [9]).

SOCIAL FACTORS

The adoption of the unitary concept of mental illness in America during the Post-World War II period was consistent with a social model of mental illness. This approach emphasized social factors such as economics, social class, and social stress in the etiology of mental disorders and deemphasized genetics, birth defects, nutrition, or biological variations. European and Scandinavian studies, in contrast, had their roots in psychiatric genetics and the exploration of hereditary and constitutional factors in mental illness and were rooted in a medical model [10].

DIAGNOSTIC UNRELIABILITY

Lastly, impetus for the use of unitary measures of psychiatric illness came from a real concern about diagnostic unreliability. The use of impairment scales made community surveys much easier to carry out. Highly trained psychiatrists with sophisticated diagnostic skills were no longer required to make judgments and the well-known variability of diagnosticians could be avoided. Moreover, there were no reliable diagnostic scales available.
The net consequence of the symptom measures adopted in the surveys of the 1950s and 1960s was a relative ease of execution and a proliferation of surveys. The results of these surveys showed a high rate of mental impairment; for example, the Midtown Manhattan studies of the 1950s found that over 80 percent of the persons surveyed had some psychiatric impairment [8]. These results could not be translated into terms which were clinically meaningful; that is, it was unclear if and what kind of psychotropic drugs would be useful for “mental impairment.” Also, these data could not be used to provide baseline rates for the family-genetic studies which have now emerged as a research interest of the 1970s.

If the data collected from future community surveys were to be more broadly useful, the next phase of psychiatric epidemiology required a reconsideration of the unitary approach to psychiatric disorders, use of specific diagnoses in community studies, and an integration of community studies with clinical psychiatry.

NEW METHODOLOGY FOR DIAGNOSTIC CLASSIFICATION

In order for this next phase to take place, major advances in psychopathology were required. Recently, there has been a resurgence of interest in discrete psychiatric disease. New techniques for improving the reliability and validity of these diagnoses have been developed. In particular, as part of a National Institute of Mental Health (NIMH) collaborative project on the psychobiology of depressive disorders, Spitzer, Endicott, and Robins [11,12] have developed new techniques which attempt to correct for unreliability due to variability in collecting the information on the signs and symptoms of psychiatric disorders, as well as variability of the diagnostic definitions. Moreover, the third edition of the American Psychiatric Association Diagnostic Classification System (APA DSM-III) has been based on this approach.

This research uses the Spitzer, Endicott, and Robins approach to improve diagnostic reliability. The field of psychopathology is rapidly developing and comparable methods are being developed and used both in this country and abroad.

THE NEW HAVEN STUDY

In 1967 a longitudinal survey of the population of a community mental health center catchment area in New Haven, Connecticut, was undertaken [13,14]. The catchment area has a population of approximately 72,000 in which all ethnic, racial, and socioeconomic groups are represented.

Sampling

A systematic sample of 1,095 households was selected in 1967. One adult (18 years of age or over) was chosen at random from each for inclusion in the sample. An in-person interview was conducted with each respondent. Of the 1,095 individuals contacted, 12 percent refused to be interviewed, 2 percent could not be reached at home to be interviewed, and 86 percent (938) were interviewed.

Two years later, in 1969, the same population was reinterviewed. Of the original 938 interviewees, 8 percent refused to be interviewed, 11 percent had moved out of the area, 4 percent had died, and 77 percent (720) were reinterviewed. With one exception, the reinterviewed sample did not differ significantly from the original cohort in any of the following variables: social class, race, sex, religion, marital status, and age. The one exception was age. There was a slight excess of subjects under age 30 among those lost to follow-up.

In 1975 and 1976, the 720 subjects interviewed in 1969 were again followed up. Of the 720 subjects, 72 percent (515) were followed up. Nine percent had died, 8 percent
could not be located, and 11 percent refused to cooperate. The rates in this paper are based on 510 subjects, as diagnostic or treatment data were missing on 5 subjects.

The reinterviewed sample did not differ significantly from the original cohort on the major sociodemographic variables with the exception of race and class—there were fewer nonwhites and fewer lower social class individuals. Further analysis shows an interaction among race, class, and loss to follow-up. Among the nonwhites, there was no class difference between those who were interviewed and those who were not, but there was a difference among the whites: 84 percent of whites still living, in Social Class I through IV, were interviewed, whereas only 73 percent of Class V whites were interviewed. Among the nonwhites, the respective figures were 63 percent and 62 percent. Most important, the symptom status in 1967 and in 1969 was not significantly related to loss to follow-up in 1975.

**Diagnostic Assessment**

Information for making diagnostic judgments was collected on the Schedule for Affective Disorders and Schizophrenia (SADS) [12]. The SADS is a structured interview guide with an accompanying inventory of rating scales and specific items. It records information on the subject's functioning and symptomatology. Although the name of the instrument suggests that it only includes information on affective disorders and schizophrenia, in fact, it is an overall mental status inventory and contains the information necessary for making diagnostic judgments for most of the major psychotic, neurotic, and personality disorders. This method has been shown to reduce the portion of variance in diagnoses due to differing interviewing styles and coverage. Table 1 illustrates some of the questions for determining the signs of depressive disorder.

On the basis of the information collected on the SADS, the subjects were classified on the Research Diagnostic Criteria (RDC), which is a set of operational diagnostic definitions with specific inclusion and exclusion criteria for a variety of nosologic groups [11]. Table 2 shows the research diagnostic criteria for major depression. The criteria for minor depression are similar with the exception that fewer symptoms and a shorter duration are required.

Diagnoses on the RDC can be made both for the current time period (current point prevalence) and for lifetime (lifetime prevalence) with the exception of several diagnoses which are considered lifetime diagnoses only, regardless of whether or not the subject is currently manifesting symptoms of the disorder. Depending on the criteria met, the diagnoses can be defined as definite or probable. In making a

| TABLE 1 |
|--------------------------|
| SADS Interview for Major Depression |

1. Did you ever have a period that lasted at least one week when you were bothered by feeling depressed, sad, blue, down in the dumps, that you just didn't care anymore, or worried about a lot of things that could happen? What about feeling irritable or easily annoyed?

2. During the most severe period were you bothered by any of the following: Poor appetite or weight loss, or increased appetite or weight gain? Trouble sleeping or sleeping too much? Loss of energy, being easily fatigued, or feeling tired? Loss of interest or pleasure in your usual activities or in sex?
psychiatric diagnosis, an effort is made to eliminate symptoms which might be due to a physical illness.

Table 3 shows the different diagnoses that can be made using the SADS-RDC method. This paper presents only the data on the current prevalence rate of depression and only the rates for definite diagnoses. A current diagnosis was obtained if the subject met the specified criteria (e.g., as shown for depression in Table 2). The number of persons meeting the criteria of a specific diagnosis divided by the number of persons interviewed yields a prevalence rate. Diagnoses were not mutually exclusive.

### TABLE 3
RDC Diagnosis

| Current or Life Time                          | Life Time Only                      |
|----------------------------------------------|-------------------------------------|
| Schizophrenia                                | Bipolar disorder                    |
| Schizo-affective                             | Cyclothymic personality             |
| Manic disorder                               | Depressive personality              |
| Hypomania                                    | Briquet's disorder                  |
| Major depression                             | Antisocial personality              |
| Minor depression                             |                                     |
| Panic disorder                               |                                     |
| Generalized anxiety disorder                 |                                     |
| Alcoholism                                   |                                     |
| Drug abuse                                   |                                     |
| Obsessive compulsive disorder                |                                     |
| Phobic disorder                              |                                     |
| Unspecified psychosis                        |                                     |
| Borderline features                          |                                     |
| Other psychiatric disorder                   |                                     |
|                                     |                                     |
Assessment of Treatment

Treatment for emotional problems was assessed primarily on the basis of asking subjects if they had sought help for any personal or emotional problems. An effort was made to eliminate from the rates treatment for physical illness only. Subjects were then presented with a list of specific sources of help and were asked whether they had sought help from any of these during the past year prior to the interview. Treatment by a mental health professional included a psychiatric clinic or a hospital, a community mental health center, psychologist, psychiatrist, social worker in private practice, a family service agency, a child counseling agency, and an alcohol or drug abuse clinic. Treatment by other professional included clergy, faith healer, lawyer, teacher, and so on. For a few subjects who reported no treatment for personal problems in this section of the interview, some treatment came to light in the course of the SADS section of the interview. Subjects for whom this was the case were reclassified appropriately.

RESULTS

Current Rates of Any Psychiatric Disorder

Of the sample 15.1 percent had a definite current diagnosis for any psychiatric disorder listed in Table 3, which was considerably lower than the rates reported in previous surveys using overall impairment scales [8].

Current Rates of Depression

Table 4 shows that 4.3 percent (22/510) of the subjects had a definite major depression on the day of interview. The rates are high in the lower social classes, persons not currently married (which includes divorced, widowed, and single persons), women, and older persons. When definite and probable diagnoses of both major and minor depression are included, the current rate is 6.9 percent (35/510).

Bipolar Disorder

The rate for bipolar disorder (i.e., persons who experience both depression and manic states) was 1.2 percent (5/510), which is lower than for major depression.

These data illustrate the magnitude of depression in the community and demonstrate that major depression is quite common, affecting about 4 percent of the population at any one time. Most depression is not bipolar; that is, people do not experience both highs and lows.

Treatment Received by Persons Diagnosed as Currently Depressed

For these analyses, cases of major and minor depression are included.

Treatment with a Psychiatrist

Depression is rarely treated by a psychiatrist. One percent (4/419) of persons with no diagnosis and 6 percent (2/35) of persons with a current major or minor depression saw a psychiatrist at any time during the past year.

Treatment with Any Professional

Table 5 shows that few persons with a major or minor depression are being treated for an emotional problem by any professional. Among persons with a current major or minor depression who identified their problems as emotional, only 34 percent
TABLE 4
Current Rates of Major Depression by Sociodemographic Factors

| Social Class:*                           | N   | %   |
|-----------------------------------------|-----|-----|
| 1 and II (N = 65)                       | 1   | 1.5 |
| III (N = 98)                            | 3   | 3.1 |
| IV (N = 225)                            | 13  | 5.8 |
| V (N = 122)                             | 5   | 4.1 |

| Currently Married:                      |     |     |
|-----------------------------------------|-----|-----|
| No (N = 135)                            | 9   | 6.7 |
| Yes (N = 375)                           | 13  | 3.5 |

| Sex:                                    |     |     |
|-----------------------------------------|-----|-----|
| Male (N = 219)                          | 7   | 3.2 |
| Female (N = 291)                        | 15  | 5.2 |

| Age:                                    |     |     |
|-----------------------------------------|-----|-----|
| 26-45 (N = 210)                         | 4   | 1.9 |
| 46-65 (N = 189)                         | 12  | 6.3 |
| 66+ (N = 111)                           | 6   | 5.4 |

| TOTAL: (N = 510)                         | 22  | 4.3 |

*Based on the Hollingshead 2 Factor Index of Social Position.

received treatment from any professional, including psychiatrists, nonpsychiatric physicians, psychologists, social workers, nurses, and clergy.

Table 5 also shows where and with whom persons with a major or minor depression are receiving treatment for an emotional problem. As can be seen, hospitalization is uncommon (6 percent); 17 percent received outpatient care with any mental health professional, 14 percent received treatment with professionals such as clergy, nonpsychiatric social workers, and nurses, and 9 percent received outpatient care with a nonpsychiatric physician.

Utilization of the General Health Care System

Table 6 shows that persons with a major or minor depression are high users of medical care; 65 percent of the persons with a current depression saw a nonpsychiat-
TABLE 6
Visits to Nonpsychiatric Physicians for Other than Problems Identified as Emotional

| Number of Visits to a Nonpsychiatric Physician During the Past Year* | % Current Major/Minor Depression (N = 35) | % No Current Psychiatric Diagnosis (N = 420)** |
|-------------------------------------------------|-----------------|-----------------|
| None                                           | 4               | 18              |
| One to three                                   | 17              | 43              |
| Four to five                                   | 13              | 12              |
| Six or more                                    | 65              | 27              |

*These figures exclude visits identified by the subject as for emotional problems.
**An additional 55 subjects had psychiatric diagnoses other than major depression.

...ric physician six or more times during the year. This was in contrast to only 27 percent of the persons with no diagnosis who made six or more visits to a physician. These figures do not include visits for problems that the patients identified as emotional. Only 4 percent of the depressives did not visit a physician.

**Psychotropic Drug Use**

Table 7 shows that more than 50 percent of the persons with a major depression used a psychotropic medication in the previous year. Minor tranquilizers (Librium or Valium) were the most frequently prescribed drug for this group (35 percent). Only a small number (17 percent) of persons with a major or minor depression received antidepressants.

DISCUSSION AND CONCLUSIONS

These results are preliminary; however, certain conclusions can be reached.

1. Psychiatric diagnoses can be made in the community. The newer diagnostic techniques which are being used in clinical research, and with increasing frequency in clinical practice, also can be used in community studies.

2. Nonbipolar depression is the most common psychiatric disorder in the community, affecting more than 3 percent of the population at any one point in time, including persons from all walks of life and all ages.

3. There is some relationship between psychiatric treatment and need. Although persons with a psychiatric diagnosis use the psychiatric and general medical health care systems more frequently than those without a diagnosis,

TABLE 7
Psychotropic Medication Used in the Last Year

| Type of Psychotropic Medication | % Using Psychotropic Medication |
|---------------------------------|---------------------------------|
|                                 | Current Major/Minor Depression (N = 35) | No Current Psychiatric Diagnosis (N = 420)* |
| Minor tranquilizers              | 35                              | 9                               |
| Antidepressants                  | 17                              | 0.3                             |
| Sleeping pills                   | 17                              | 2                               |
| Any of the above                 | 55                              | 11                               |

*An additional 55 subjects had psychiatric diagnoses other than major depression.
a. only about one-third of the overall number of depressed persons receive any treatment from any professional, and the percentage who see a psychiatrist is even less (6 percent);
b. depressed persons are, however, high attenders of nonpsychiatric physicians, the majority of whom see their physicians more than six times a year;
c. over half the subjects with a depression receive a psychotropic drug—most commonly a minor tranquilizer—and only about 17 percent receive an antidepressant.

Limitations of This Study

While this study represents the first application of research diagnostic criteria to a community sample in the United States, its limitations should not be underestimated.

The original sample in 1967 derived from a probability sampling of an urban community, but, by 1975, attrition had occurred due to death, moves, and refusals. Since persons with psychiatric disorders tend to die younger than those without, we can expect that the more severe disorders were underrepresented in the persons reexamined in 1975. Persons living in institutions (nursing homes, hospitals, prisons) were not included in the 1967 sample so that, again, the more seriously ill are not represented. Although we interviewed over 500 persons, the sample size is still too small for disorders of low frequency. While the New Haven study was longitudinal, the new diagnostic techniques had not been available for use until the 1975–76 reinterview, so that in 1975 we learned about the prevalence of disorders (i.e., new and existing cases) but not about the incidence rate of the disorders (i.e., the rate of new cases in any time period). Incidence data would require a longitudinal design.

We considered this a pilot study. Having demonstrated the feasibility of the approach, we are now undertaking a large-scale epidemiologic catchment area study in New Haven. We will be interviewing over 3,000 subjects, a probability sample of the New Haven Standard Metropolitan Statistical Area (SMSA), including persons in institutions. The interviews will be conducted three times over the course of one year, so that information will be available not only on the prevalence and treatment of psychiatric disorders at any one time, but on the incidence of disorders (i.e., the number of new cases developing over the year). We also plan to obtain information on barriers to treatment such as problems concerning information, access, and stigma.

UTILITY OF THE DIAGNOSTIC APPROACH IN COMMUNITY SURVEYS

We feel the diagnostic approach is quite useful. It will provide baseline rates of psychiatric disorders that can be used in family-genetic studies [15]. When we compare the morbid risk of illness in a first-degree relative of a proband we will have some idea of the rates of that illness in the general population.

It will also allow us to translate epidemiological results into our clinical work. For example, we may learn if the patients diagnosed as depressed who are coming to our clinic for treatment are representative of depressed subjects in the community in terms of age, sex, social class, etc., or if the inordinately high rate of depressed women seeking treatment is an artifact of help seeking or a real phenomenon [16].

THE UTILITY OF PSYCHIATRIC DIAGNOSIS

We feel that diagnostic classification, if subjected to appropriate validation, increases precision, gives more information about the person, and allows us to make predictions. For example, there is reasonably good evidence that the clinical course,
prognosis, family association, and response to treatment will differ by diagnostic group. A bipolar patient responds to treatment with lithium carbonate, and a schizophrenic to major tranquilizers. Persons with these different diagnoses have different clinical courses and prognoses, as well as different family aggregation.

The data on rates of disorders in the community and their treatment are also useful in health care policy. As the nation debates the various forms of national health insurance, the question arises about including coverage for the treatment of mental disorders because of the concern that psychiatrically ill persons will overuse services. In fact, these data show that persons with psychiatric disorders are in the health care system but not necessarily in the mental health system. If mental health services are included, some of the heavy use of nonmental health services by persons with psychiatric disorders may be transferred to the mental health sector. This transfer, if coupled with early detection and appropriate treatment, could serve to reduce overall utilization of health care by the psychiatrically troubled.

In summary, if epidemiologic studies are to be useful in providing the information which is currently needed for testing genetic or psychosocial hypotheses, or planning health care, they require integration with clinical thinking and the use of diagnostic criteria. The recently improved precision and reliability of diagnostic criteria are beginning to make possible the integration of clinical psychiatry and psychiatric epidemiology.

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