# Estimating the Prevalence of Mental Disorders in U.S. Adults from the Epidemiologic Catchment Area Survey

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## Synopsis ....................................

The National Institute of Mental Health Epidemiologic Catchment Area Survey is a comprehensive, community-based survey of mental disorders and use of services by adults, ages 18 and older. Diagnoses are based on the criteria in the "Diagnostic and Statistical Manual of Mental Disorders," third edition, and were obtained in five communities in the United States through lay-interviewer administration of the National Institute of Mental Health Diagnostic Interview Schedule.

Results from the survey provide the public health field with data on the prevalence and incidence of specific mental disorders in the community, unbiased by the treatment status of the sample. The population with disorders is estimated, and the survey findings that respond to some of the most common requests for information about the epidemiology of mental disorders in the United States are highlighted briefly.

Based on the survey, it is estimated that one of every five persons in the United States suffers from a mental disorder in any 6-month period, and that one of every three persons suffers a disorder in his or her lifetime. Fewer than 20 percent of those with a recent mental disorder seek help for their problem, according to the survey. High rates of comorbid substance abuse and mental disorders were found, particularly among those who had sought treatment for their disorders.

THE EPIDEMIOLOGIC CATCHMENT AREA (ECA) Survey is the largest, most comprehensive survey of mental disorders ever conducted in the United States. It was sponsored by the National Institute of Mental Health (NIMH) under a Cooperative Agreement with five research sites—Yale University, New Haven, CT; Johns Hopkins University, Baltimore, MD; Washington University, St. Louis, MO; Duke University, Durham, NC; and the University of California at Los Angeles, Los Angeles, CA. (See box p. 666.)

A total of 18,571 household and 2,290 institutional residents ages 18 and older were interviewed personally or by proxy by means of the NIMH Diagnostic Interview Schedule (DIS) (1) and a questionnaire on use of health and mental health services. The research design included two waves of personal interviews 1 year apart with a telephone interview in between. Psychiatric diagnoses were made according to criteria of the "Diagnostic and Statistical Manual of Mental Disorders," third edition, (DSM-III) (2). The Wave 1 survey, source of the data in this report, had staggered starting dates among the five sites, from July 1980 at Yale to January 1983 at UCLA. Information on the complex sample survey design and methodology of the program has been published (3,4).

The sample used for this paper excludes the proxy interviews, leaving a total of 20,291 interviews. This sample includes 18,344 persons from community households and 1,947 persons from mental hospitals, nursing homes, and penal institutions.

The purpose of this report is twofold.

1. to provide prevalence rates and current population estimates for specific mental disorders that may be useful for public and private health planning purposes, and
2. to highlight significant findings from the ECA data analyses that respond to some of the most common requests for information about the epide-

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miology of mental disorders in the United States. Incidence rates (new cases of a disorder in a specific time period) have been reported on a site specific basis (5,6).

## Population Estimates

National prevalence rates for the disorders assessed in the ECA survey have been previously reported for the community based household sample (7). Those rates differ slightly from rates given in this paper, since we include both the community and the institutional samples.

Table 1 shows 1-month, 6-month, 1-year, and (ever in) lifetime prevalence rates and the corresponding estimated number of people affected by a disorder during any given period of that length. A review of these data discloses that in any 6-month period, 19.5 percent of the adult population of the United States, or 1 of every 5 people ages 18 and older, suffers from a diagnosable mental disorder. The disorders with the highest lifetime prevalence involve substance use (16.7 percent). Anxiety disorders afflict 14.6 percent and depressive disorders are suffered by 8.3 percent. For current (1-month) rates, however, the disorders with the highest prevalence are anxiety (7.3 percent), depressive (5.2 percent), and substance use (3.8 percent).

A 1990 resident population estimate of 184 million adults (unpublished 1990 Census data), ages 18 and older, was used as the population base. The prevalence and use of services rates have been standardized to the age, sex, and race distribution of the 1980 U.S. population, ages 18 and older. Although the ECA study was not based on a national probability sample of the total U.S. population, the results of studies replicated at five sites with populations of different geographic, rural-urban, age, sex, socioeconomic, and ethnic compositions may lessen systematic biases and provide more confident projections to the nation as a whole than previous estimates that were based on one-site studies with smaller samples (7).

The 1-month prevalence rates provide a measure of persons having a disorder in any recent 1-month

period. This measure of current disorder is used to estimate the number of persons who could benefit from mental health services or treatment at any given time. The 1-year rates may be helpful to State mental health agencies that estimate the need for services based on anticipated annual client load. It is noteworthy that the prevalence rates for dysthymia and cognitive impairment do not change across time spans. Each could be assessed for one time period only. Dysthymia is a chronic, mild depression of at least 2-years duration and was measured in this survey only on a lifetime basis. Cognitive impairment was assessed by administering the Mini-Mental State Examination (8) at the time of the survey. Therefore, it is a measure of current impairment.

Those who wish to make population estimates for specific disorders by age groups, or by sex, are cautioned that they must adjust the population base to fit the age or sex group of interest. The Bureau of the Census provides population estimates by sex and by 5-year age groupings so that the population base may be tailored to fit specific research needs. The household rate for any age or sex grouping reported by Regier and colleagues (7) may be multiplied by the special population base to obtain an estimate of the number of men or women in a specific age group who may be affected by a disorder.

## Sex Differences

The broad-based ECA survey included disorders not assessed in previous epidemiologic studies. In previous studies that focused mainly on depressive and anxiety disorders, mental disorders were reported to be nearly twice as prevalent in women than in men. In the ECA survey, that included antisocial personality, substance abuse disorders, and cognitive impairment, relatively equal rates of total disorder for women and men were found when all prevalence time periods were considered. The total 1-month disorder rate was significantly higher for women (17.0 percent) than for men (14.3 percent) ($P < .01$), a female-to-male ratio of 1.19. There were no sex differences, however, in the 6-month or 1-year rates for total disorder. The ratio was reversed for lifetime rates, with men reporting a significantly higher ($P < .01$) total disorder rate (35.4 percent) than women (30.0 percent), a female-to-male ratio of 0.85.

Marked sex differences were found for specific disorders. Regier and coworkers (7) reported that men had significantly higher rates of substance use

Table 1. Prevalence of DIS/DSM-III disorders in the United States and number of affected adults ages 18 and older (in millions) by specific mental disorder

| Disorders | 1-month | | 6-month | | 1-year | | Lifetime | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Any DIS disorder covered in the survey .... | 28.9 | 15.7 | 35.8 | 19.5 | 39.9 | 21.7 | 60.2 | 32.7 |
| Any DIS disorder except substance use .... | 23.9 | 13.0 | 27.8 | 15.1 | 30.7 | 16.7 | 41.4 | 22.5 |
| Substance use disorders.................. | 7.0 | 3.8 | 11.2 | 6.1 | 13.8 | 7.5 | 30.7 | 16.7 |
| Alcohol abuse/dependence.............. | 5.2 | 2.8 | 8.6 | 4.8 | 10.9 | 5.9 | 24.8 | 13.5 |
| Drug abuse/dependence ................ | 2.4 | 1.3 | 3.7 | 2.0 | 4.6 | 2.5 | 11.2 | 6.1 |
| Schizophrenia/schizophreniform disorders .. | 1.3 | 0.7 | 1.7 | 0.9 | 1.8 | 1.0 | 2.8 | 1.5 |
| Depressive (affective) disorders............ | 9.6 | 5.2 | 10.7 | 5.8 | 11.6 | 6.3 | 15.3 | 8.3 |
| Bipolar (manic episode)................. | 0.7 | 0.4 | 1.1 | 0.6 | 1.1 | 0.6 | 1.5 | 0.8 |
| Major depression....................... | 4.2 | 2.3 | 5.5 | 3.0 | 6.4 | 3.5 | 10.9 | 5.9 |
| Dysthymia ............................. | 6.1 | 3.3 | 6.1 | 3.3 | 6.1 | 3.3 | 6.1 | 3.3 |
| Anxiety disorders......................... | 13.4 | 7.3 | 16.4 | 8.9 | 18.6 | 10.1 | 26.9 | 14.6 |
| Phobia ................................ | 11.6 | 6.3 | 14.2 | 7.7 | 16.2 | 8.8 | 23.2 | 12.6 |
| Panic disorder ........................ | 0.9 | 0.5 | 1.5 | 0.8 | 1.7 | 0.9 | 2.9 | 1.6 |
| Obsessive-compulsive ................. | 2.4 | 1.3 | 2.8 | 1.5 | 2.9 | 1.6 | 4.6 | 2.5 |
| Somatization disorder..................... | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 | 0.1 | 0.3 | 0.1 |
| Antisocial personality disorder............. | 0.9 | 0.5 | 1.5 | 0.8 | 2.2 | 1.2 | 4.8 | 2.6 |
| Severe cognitive impairment .............. | 3.1 | 1.7 | 3.1 | 1.7 | 3.1 | 1.7 | 3.1 | 1.7 |

NOTE: Number of affected adults based on population estimates from the 1990 census of 184 million persons ages 18 and older, resident population.

DIS/DSM-III = Diagnostic Interview Schedule/Diagnostic and Statistical Manual of Mental Disorders, third edition.

disorders and antisocial personality disorder. Women had significantly higher rates of affective, anxiety, and somatization disorders. Schizophrenia and manic episode showed similar rates for men and women.

## Severe Mental Illness

One of the most frequently asked questions is "How many people are mentally ill?" While all of the mental disorders covered in the ECA survey are considered serious disorders, NIMH refers to those persons afflicted with the major disorders of schizophrenia, bipolar affective disorder, and major depression as "severely mentally ill." A population estimate for persons currently affected (1-month prevalence) with these severe disorders is 4.6 million people. An estimate for the number of persons affected sometime in their lifetime with these disabling disorders is 11.2 million.

## Comorbidity of Disorders

Comorbidity, the occurrence of more than one disorder in the same person at the same time, was found to be more extensive than previously suspected. Boyd and colleagues (9) reported that persons with any DIS/DSM-III disorder had significant odds of having almost any other disorder. This was an important finding because the DSM-III is an exclusionary, hierarchical diagnostic system that rules out a certain diagnosis if another one is made. Analyses of the ECA data have ignored the

Table 2. Percentages of adults ages 18 and older with one or more DIS/DSM-III disorders

| Prevalence time period | 1 or more | 2 or more | 3 or more |
|---|---|---|---|
| Past 1 month ............... | 15.7 | 3.6 | 1.1 |
| Past 6 months .............. | 19.5 | 4.8 | 1.6 |
| Lifetime ................... | 32.7 | 11.3 | 4.7 |

NOTE: DIS/DSM-III = Diagnostic Interview Schedule/Diagnostic and Statistical Manual of Mental Disorders, third edition.

Table 3. Percentages of adults ages 18 and older who used outpatient and inpatient services for mental health reasons, by number of disorders

| Services | No disorder | Any disorder | 1 disorder | 2 or more disorders |
|---|---|---|---|---|
| Outpatient mental health or general medical in past 6 months ......... | 4.6 | 17.6 | 13.7 | 29.1 |
| Inpatient hospitalization in past year.............. | 0.4 | 2.9 | 1.4 | 7.5 |
| Any outpatient or inpatient services............... | 4.7 | 18.2 | 13.9 | 30.8 |

exclusion criteria of DSM-III to study the natural association between disorders and the prevalence of comorbid disorders.

Due to the comorbidity of disorders in the ECA site subjects, the percentages of specific disorders seen in table 1 do not add up to the total percentage of disorder. Table 2 shows the percentages of the U.S. population with more than one diagnosis of disorder. Of the 15.7 percent with a disorder in a 1-month period, 23 percent had a

co-occurring disorder. Of the 19.5 percent with a disorder in a 6-month period, 25 percent had comorbid disorders during the same period. The lifetime period shows that 35 percent of those with a disorder had one or more additional disorders sometime during their lifetimes.

In an analysis of comorbidity of mental disorders with alcohol and other drug abuse disorders, Regier and colleagues (10) reported that 29 percent of persons with mental disorders also have a lifetime diagnosis of a substance abuse disorder. Of those persons with a drug disorder (other than alcohol), 53 percent have a mental disorder, and among those with an alcohol disorder, 37 percent have a mental disorder.

## Use of Services

A surprising finding of the ECA survey was that so few respondents with a disorder ever sought treatment for a mental health reason (11). Table 3 reports the percentages of those with a recent disorder who sought help for a mental health reason in a mental health specialty or general medical outpatient setting or from inpatient settings. ECA respondents were asked about their use, in the last 6 months, of ambulatory mental health and general medical services, while the rarer, inpatient mental health care was assessed in the past year and prior to 1 year. Only 17.6 percent of those with a disorder in the past 6 months sought outpatient mental health specialty or general medical services during that time period for a mental health reason. Inpatient hospitalization was used by 2.9 percent of those with a disorder in the last 6 months. Of those with a disorder, 18.2 percent had sought care from either outpatient or inpatient care settings for a mental health reason.

The tendency for persons in treatment settings to have more than one disorder was first noted by Berkson (12) who found that true comorbidity rates were "biased" upward in treatment settings. The effect of having more than one diagnosable disorder on a person's decision to seek treatment is seen in the increase in rates of mental health care between those with only one disorder and those with more than one. Table 3 shows that twice as many of those with two or more disorders had sought outpatient care as did those with only one disorder. Five times the number of those with two or more disorders had been in inpatient hospitalization settings, compared with those who had only one disorder. Overall, 13.9 percent of respondents with one disorder only had sought either outpatient or inpatient mental health care, while 30.8 percent of those with more than one disorder had sought care.

Regier and colleagues (10) found that those persons seeking treatment in specialty mental health or substance abuse treatment settings had two to four times the odds of having co-occurring mental and substance abuse disorders than did those who did not seek treatment. These results provide compelling evidence that mental health and substance abuse treatment programs should evaluate and provide therapies for probable comorbid disorders.

## Discussion and Future Plans

The ECA study was a landmark survey in providing comprehensive mental health information on adults. To date, more than 300 articles and 3 books have been published using the ECA data (a publication list may be obtained from the first

author). A rich source of information on specific disorders and the demographic distribution of each disorder by age, sex, ethnicity, and socio-economic level is the recently published book entitled, "Psychiatric Disorders in America: The Epidemiologic Catchment Area Study" (13).

Although the ECA survey took place in the early 1980s, the data still provide the best estimates of current mental disorder among U. S. residents, ages 18 or older. There is the possibility that a period effect (changes in rates of illness associated with a specific period of time) could change the base rates somewhat from 1980 to 1990. However, a clearly quantified period effect, other than a possible decrease in the prevalence of drug abuse has not yet been proven (14). Based on an analysis of rates of depression by birth cohort from several epidemiologic studies, including the ECA, Klerman and Weissman (15) found evidence of increasing rates of depression for cohorts born in this century, as well as earlier ages of onset for successive cohorts. This finding, based on retrospective data, provides an intriguing research question for future studies that incorporate prospective research designs.

NIMH is continuing to support ECA data analyses through individual research grants. A public use data tape containing the complete ECA core dataset was released in September 1992 to expand the number of researchers analyzing the data (16). Extensive analyses of the Wave 2 data are under way, including an NIMH analysis of the use of services across the two waves of the survey.

The extent of comorbid addictive and mental disorders found among ECA respondents provided the impetus for a current NIMH-supported national comorbidity study of mental and substance abuse disorders. The structured diagnostic interview that was developed for the ECA survey has provided the research and clinical field with an invaluable tool for the comprehensive assessment of mental disorders. Dr. Lee N. Robins has continued development of the DIS that she used as the basis for the Composite International Diagnostic Interview (CIDI) (17). This instrument, written at the request of the World Health Organization, is designed for DSM-III-Revised and International Classification of Disease, 10th revision, (ICD-10) diagnostic systems and was field tested in 19 centers around the world.

Comprehensive epidemiologic data on mental disorders and use of services among children is still not available. NIMH has begun a major epidemiologic initiative to field an ECA-type survey of mental disorders in children and adolescents. Because of the complexities of carrying out such a large-scale survey among children and because of changes under way in the DSM criteria for children's psychiatric disorders, this program has been designed to be carried out in two phases.

Four research sites were funded in late 1989 under the Phase 1 methodology program to evaluate a battery of instruments that will assess psychiatric diagnoses in children, risk factors for disorder, and use of services and barriers to care. Survey procedures and sampling techniques suitable for community-based population samples of children are also being evaluated. It is anticipated that Phase II, the large-scale, multi-site, epidemiologic survey of children and youth, may begin in 1994.

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# AIDS Education for Health Care Professionals in an Organizational or Systems Context

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## Synopsis .....................................

Traditionally, health education for practicing health professionals, as well as members of the public, focuses on the individual and relies on changing personal behavior. However, health care for persons with acquired immunodeficiency syndrome (AIDS), and members of their families, mainly is delivered within health and human ser-

vices organizations. Providing AIDS education for health care professionals in an organizational or systems context shifts the focus from the individual to the group and from changing a person's behavior to offering health care professionals opportunities for interaction. In an organizational or systems approach, they can address patient care issues collectively, share interdisciplinary knowledge, identify problems of common concern, plan coordinated and integrated responses, and provide mutual support.

A strategy for planning AIDS education is proposed for key administrators, supervisors, and care providers, who are the gatekeepers, opinion makers, and role models of organizations. Addressing organizational, community, and health care delivery system issues as part of an education program provides a forum for defining problems and a basis for uniting professionals and developing solutions.

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THe NEED FOR EFFECTIVE STRATEGIES for preventing the spread of the human immunodeficiency virus (HIV) has stimulated the development of programs for educating the public about HIV infection and acquired immunodeficiency syndrome (AIDS).

A parallel and less known effort is that of designing and delivering education programs for health and human services professionals. Federal funding, provided since the mid-1980s, primarily through the Health Resources and Services Administration and the National Institute of Mental Health, agencies of the Public Health Service, has resulted in a network of education and training centers, whose goal is to provide comprehensive AIDS education for primary health care providers. Different education strategies and models have emerged, based on perceived needs and regional differences.

To a large extent, medical and psychosocial care for persons with AIDS is provided within organizations. Responsibility for providing their care lies primarily with hospitals, health maintenance organizations, and publicly funded primary care facilities, such as community health centers, public and not-for-profit social service agencies, and AIDS related agencies.

An organizational or systems approach to AIDS education for practicing health professionals offers distinct advantages. First, until recently, treating AIDS as an acute illness brought patients into hospital settings. Many continued to be seen at the same facilities on an outpatient basis. Health care financing mechanisms have contributed to the organizational response. Health insurance coverage for persons with AIDS may be limited or cease if they become unemployed, necessitating that they turn to public sources for care. Community health clinics,