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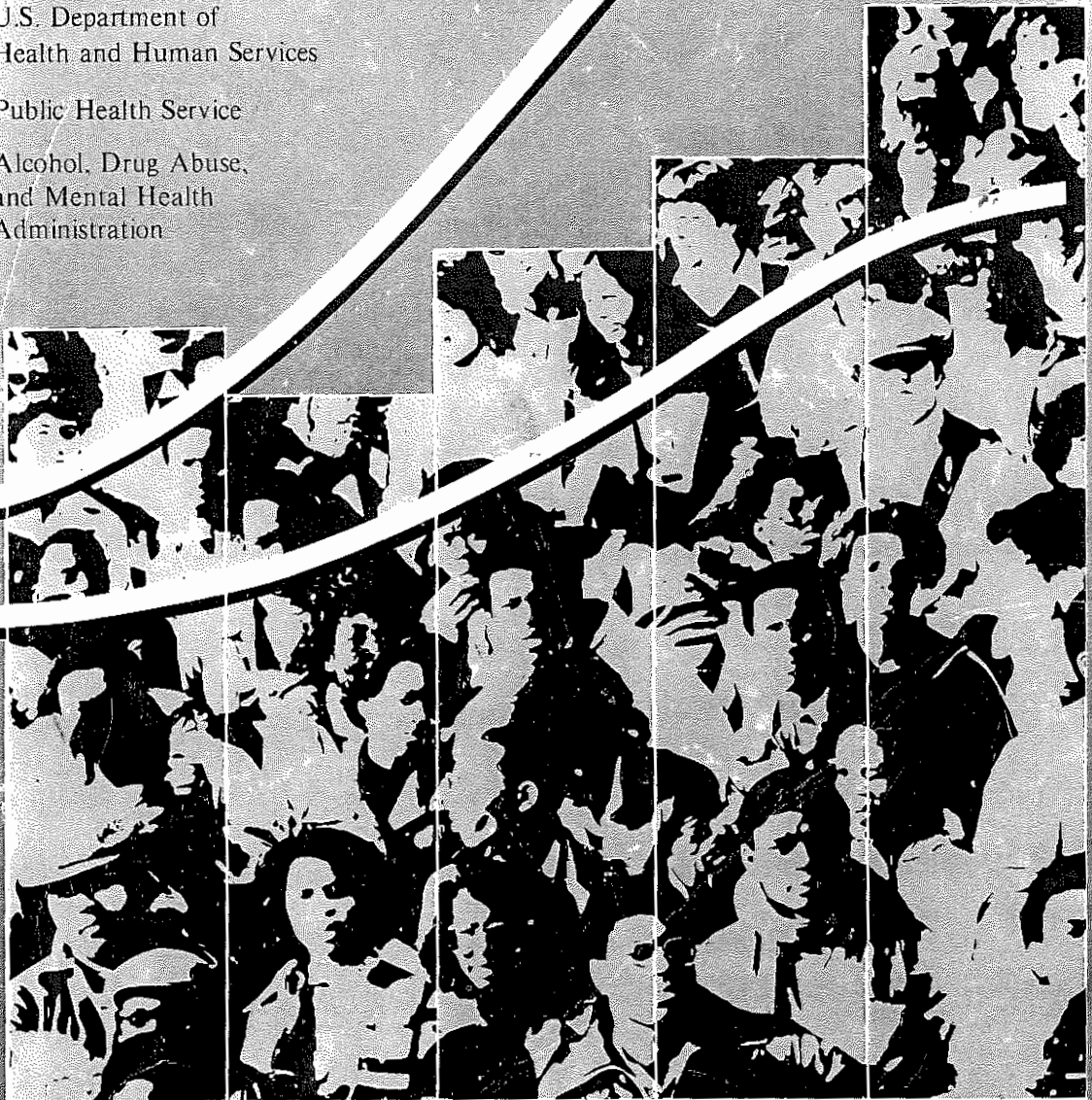
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Mental Health, United States 1990

FOX

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Symbols in Tables

Quantity or percent zero	—
Percent greater than 0, but less than 0.05	0.0
Does not meet standards of reliability or precision	*
Data not available	NA

Chapter 4

Human Resources in Mental Health

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Late in 1987, research staff from the American Psychiatric Association, the American Psychological Association, the National Association of Social Workers, and representatives of professional psychiatric nursing formed a work group on human resources data with staff from the National Institute of Mental Health (Dr. Manderscheid). This work group had several major purposes:

- To identify common, core data that can be reported on human resources by each of the four core mental health disciplines.
- To prepare a chapter for Mental Health, United States, 1990 that presents and describes these data.
- To identify data gaps and plan steps by which these gaps might be corrected.
- To improve survey comparability among the four core disciplines so that the essential pool of common core data can be expanded.

To date, the work group has primarily addressed the first two of these purposes; the present chapter was developed

as the first product of the joint effort. The chapter is designed to present comparable information on the size and characteristics of each of the four core disciplines. Results are restricted to those data elements that are comparable across the disciplines. Exceptions to this general approach are noted in the footnotes and in appendix C. Readers are encouraged to review the appendix for descriptions of the survey methodologies used to collect these data.

Clearly, a strong need exists in the mental health field for increased precision and comparability of human resources data. Because mental health is a very labor-intensive field, the policy and resource implications of human resource data are enormous. To plan adequately for future services, both the public and private sectors require access to such data. In this context, the present chapter is a first step along a path that is of potential benefit to the entire field.

At the outset, it is important to specify the scope and limitations of the data. The reader needs to be sensitive to data coverage both across and within disciplines, as well as over time.

The chapter addresses two types of human resources:

- *Clinically trained mental health personnel*—Active professionals who, because of recognized formal training and/or experience could perform direct clinical mental health care, whether or not they are doing so at present.
- *Clinically active mental health personnel*—Those professionals who are currently engaged in the provision of direct clinical mental health care (a subset of total active mental health personnel).

The numbers of clinically trained mental health personnel and clinically active mental health personnel are specified only for professionals from the four core mental health disciplines. Other groups have not been considered in this initial report. The reader should note that clinical supervision of trainees is considered to be a direct clinical activity in the analyses of activity type.

When possible, coverage includes an entire discipline, rather than the membership of a professional association. The analyses for each discipline specify the scope of coverage. Most notably, the statistical information on social workers is restricted to the membership of the National Association of Social Workers. Timeframes for the statistical information vary somewhat from discipline to discipline. Most notably, the timeframe for psychiatry departs from that for the other three disciplines.

As a final comment, unknowns have been distributed proportionately, based on known counts, except in tables 4.3 and 4.4. In the latter instances, the exclusion of territories and military and civilian personnel residing outside the United States precluded this calculation.

Psychiatry¹

Demographic and Training Characteristics

In 1982, an estimated 30,642 psychiatrists were in the United States (table 4.1), and the number has been increasing since then. (Parts of this section were abstracted from Koran 1987 and Taintor and Robinowitz 1987.) Slightly more than 8 out of 10 U.S. psychiatrists in 1982 were men (table 4.2), yet psychiatry ranked first among medical specialties in the proportion of women and third (as it had since 1970) in the number of women practitioners. The number of women physicians choosing psychiatric careers has increased in recent years, as suggested by the greater proportion of women than men in psychiatry who are younger than 40 years of age. The median age of active psychiatrists in 1982 was 48 years; female respondents were, on the average, about 2 years younger than male

respondents. Between 1965 and 1982, the median age of the active population of psychiatrists increased by almost 3 years.

Blacks and American Indians are underrepresented in psychiatry, compared to their proportions in the U.S. population. In contrast to the figures shown in table 4.2, blacks constituted 12 percent of the U.S. population in 1982, and American Indians and related groups 0.6 percent. Persons of Hispanic descent were approximately proportionally represented; they comprised 6 percent of the population. Those of Asian origin, comprising 1 percent of the population, were overrepresented. A much smaller percentage of blacks and American Indians than of whites complete college. Persons of Hispanic descent also are less likely than whites to complete college, but the difference is considerably smaller. Asian descendants are more likely than whites to complete college (U.S. Bureau of the Census 1984). The different rates of immigration of foreign medical graduates from these minority groups also affects their representation among psychiatrists. To address the underrepresentation of racial and ethnic minorities among psychiatrists, the American Psychiatric Association (APA) has promoted high school, college, and medical school programs to encourage recruitment.

The distribution of psychiatrists also varies considerably across the States (table 4.3), ranging from 4 per 100,000 resident population in Idaho to more than 28 per 100,000 in Massachusetts and New York, and 77 per 100,000 in the District of Columbia. Generally, the New England and the Middle Atlantic States have the most psychiatrists per population; the East South Central and the West South Central States, the least. The distribution of clinically active psychiatrists follows that for all psychiatrists (table 4.4).

Reforms in medical education transformed the education and training of physicians in the first three decades of this century (Ludmerer 1985). The specialty of psychiatry has participated fully in those changes. Formal residency training in medical specialties did not become widespread in the United States until the 1930s. The first list of hospitals approved for residency training by the American Medical Association's (AMA) Council on Medical Education and Hospitals was published in 1927 (Turner 1956). Residencies offer appropriately graded responsibility for patient care under the supervision of the physicians responsible for each patient's care. The AMA Council first approved formal residency programs to train physicians in the specialty of psychiatry in 1933. Today, the Accreditation Council for Graduate Medical Education (ACGME) sets the standards and requirements for accreditation of residency programs. Education as a psychiatrist involves graduation from medical school and completion of a postgraduate psychiatry residency program accredited by the ACGME.

The residency program in general psychiatry has for most of its history been a 4-year program of full-time training that follows completion of medical school. At least 4 months of the first postgraduate year are devoted to nonpsychiatric medical specialties such as internal medicine, pediatrics, neurology, and emergency medicine. Between 1970 and 1977, only 3 years of postgraduate training were required and less emphasis was placed on training in nonpsychiatric specialties. Thus, fully qualified psychiatrists who entered residency training after 1932 have completed at least 3, and in most cases, 4 years of full-time training. Each psychiatric residency training program is reviewed at least once every 3 years by the Accreditation Council's Psychiatric Residency Review Committee to ensure compliance with educational standards.

The great majority of respondents to the 1982 survey had completed at least 3 years of residency training in psychiatry. Only 6 percent had completed 2 or fewer years of specialty training in psychiatry, and many of those physicians completed their training before the 1933 standards were implemented.

A greater proportion of women than men psychiatrists had completed 4 or more years of psychiatric training. This is a reflection of the relatively high proportion of women in child psychiatry. In 1980 the Graduate Medical Education National Advisory Committee projected a shortage of 4,900 child psychiatrists in 1990 (Health Resources Administration 1980). The increased recruitment into general psychiatry after 1980 provided a larger pool of psychiatrists for recruitment into child psychiatry and may have helped alleviate the projected shortage to a small extent.

In 1970, there were 275 residency programs in general psychiatry. By 1985, this number had fallen to 220, as many programs sponsored by State hospitals had ceased to function. State hospital residency programs had relied heavily on foreign medical graduates (FMGs) to fill their positions. Largely as a result of Public Law 94-484, the number of FMG residents in these residency programs dropped by 42 percent between 1975 and 1980 (Thompson et al. 1983).

American medical specialty boards were organized with the encouragement of the AMA and national specialty societies to upgrade the training and qualifications of medical specialists. Each specialty board establishes minimal education and training standards in its field. The board also determines whether candidates for specialty certification have had adequate preparation, administers voluntary certification examinations, and pronounces physicians as competent to practice the specialty in which they have met the training requirements and passed the certifying examination. The American Board of Psychiatry and Neurology was established in 1934.

Certification in general psychiatry is a prerequisite for other certifications (child psychiatry, forensic psychiatry, or administrative psychiatry). Women are less likely than

men to be board-certified in general psychiatry but more likely to attain subsequent certification in child psychiatry. Psychiatrists trained in the 20 years preceding the 1982 survey were more likely to be board-certified than those who trained earlier.

Table 4.5 shows that slightly less than half of all psychiatrists have completed their training in the past 20 years, while slightly more than half have completed their training longer than 20 years ago. These results are consistent with a median age of 48 for psychiatrists. The relatively small number of psychiatrists who received their highest professional degree in the past 5 years (less than 3 percent) is reflective of the fact that many were still in residency training during this period.

Professional Activities

Most psychiatrists work in more than one setting (table 4.6), a trend that has grown since at least 1965. (Parts of this section were abstracted from Fenton 1987.) The average psychiatrist worked in 1.7 settings in 1965, 1.8 settings in 1970, and 2.3 settings in 1982. Work in multiple settings may reflect both physician preference and the availability of part-time positions. The most common combination of work settings among psychiatrists in 1982 was private practice and organization-based work. Fewer than one in six respondents to the 1982 survey limited their practice to the private office exclusively.

The numerous interconnections in the mental health care system complicate any consideration of psychiatrists' work settings. For example, psychiatrists working in a general hospital psychiatric unit that is both a teaching unit for a residency program and the inpatient component of a local community mental health center (CMHC) could describe themselves as based in any of those three types of organization. Accordingly, when the APA surveys psychiatrists about their work settings, it asks them to designate their primary, secondary, and as many as four other work settings. More than half of the active respondents to the 1982 survey listed private practice as their primary work setting (table 4.7). The majority of the remaining psychiatrists worked in five categories of organizations: universities, State and Federal hospitals, CMHCs, and private and other (primarily general) hospitals. Private practice historically has been the primary work setting for the greatest number of psychiatrists, but substantial changes have occurred over the years. Declines in the inpatient populations of psychiatric hospitals, the introduction of CMHCs in the mid 1960s, and the rise of health maintenance organizations (HMOs) have been among the forces contributing to those changes. The work settings of clinically active psychiatrists are very similar to those for all psychiatrists (table 4.8).

In addition to distribution by setting, psychiatrists can be subaggregated by primary work activity (table 4.9). Almost 9 out of 10 psychiatrists list direct service as their primary work activity; only 6.1 percent list administration as a primary work activity.

Psychology

Because of its content and evolution, psychology has traditionally occupied a unique place within the mental health professions. Prior to World War II, psychologists were primarily ensconced in academic institutions, with only a small core of individuals employed outside the university and actively engaged in mental health services. In fact, only relatively recently has the discipline cultivated a strong and visible practitioner base. For example, not until 1977 with the passage of the Missouri psychology licensure act did all 50 States and the District of Columbia grant statutory recognition to the profession (DeLeon et al. 1984). Since that time, the number of licensed psychologists has burgeoned, rising from an estimated 20,000 in 1975 to almost 46,000 only 10 years later (Dorken et al. 1986).

Coupled with this dramatic growth in the population of practitioners was a significant expansion in psychologists' role as direct mental health providers. Today, psychologists are involved in almost every type of mental health setting, be it institutional or community-based, research- or treatment-oriented, or general health- or mental health-focused. Within these environments, psychologists' roles have also expanded beyond the traditional activities of diagnostic assessment and psychotherapy to include primary prevention, community-level intervention strategies, assessment of service delivery systems, and client advocacy.

Demographic and Training Characteristics

As illustrated in table 4.1, the 1980s witnessed substantial growth in the number of doctoral-level psychologists who could be called upon to provide mental health services. Since 1983, the number of doctoral psychologists trained and/or working in health services rose from almost 45,000 to nearly 57,000 in 1989—a growth of about 27 percent. In fact, nearly three-quarters of the growth in the total number of employed doctoral psychologists can be traced to increases in the three major practice-oriented fields of the discipline, i.e., clinical, counseling, and school psychology (Pion in press).

The figures provided in table 4.1 are only one indicator of the overall trend toward psychologists becoming increasingly involved in the services delivery sector. Other

information also points to this expansion. For example, in 1979, the number of new Ph.Ds and Psy.Ds produced in clinical, counseling, and school psychology was 1,571, but by 1989 this number had increased to almost 2,700 (Pion in press). The number of doctoral psychology programs in these major health service provider specialties accredited by the American Psychological Association has also grown during the past decade, from 134 in 1979 to 231 in 1989.

At the same time, questions still arise with regard to the adequacy of the supply of mental health service providers in psychology. As the National Academy of Sciences recently stated, "the future labor market for clinical psychologists is projected to be characterized by an increasing imbalance of demand over supply" (Committee on Biomedical and Behavioral Research Personnel 1989). Deficiencies are evident in a variety of areas. For example, as indicated in tables 4.3 and 4.4, neither the pool of clinically trained providers nor those actively involved in services provision are evenly distributed geographically, a situation that has persisted for some time (e.g., Knesper et al. 1985; Stapp et al. 1985). To illustrate, in 1989, there were about 17 active psychological providers per 100,000 population in the United States. Although some States had provider/population ratios well above the average (e.g., Massachusetts, New York, and the District of Columbia), the large majority of States had significantly smaller ratios. Such data reiterate the fact that mental health services provided by qualified personnel are relatively inaccessible in many areas of the country.

Shortages of mental health personnel, including psychologists, also appear for specific target populations. Children with serious emotional disturbances, the chronically mentally ill, AIDS victims, and the elderly are only a few of the groups requiring specialized mental health services. Generally, the current mental health delivery system appears inadequately prepared to provide services to these populations. At this time, data do not exist for determining the actual and needed numbers of qualified providers for these groups, but all indicators show that these groups are underserved, partly as a result of an insufficient supply of personnel who can address their multiple service needs.

Tables 4.2 and 4.5 present basic information on the demographic and training characteristics of psychologists who could provide mental health services (the clinically trained pool). As can be seen, over one-third of this group is female, and the overwhelming majority is white. In general, this group is relatively young, with more than two-fifths having received their doctorates since 1979.

Comparing the characteristics of men and women, the pool of clinically trained women providers, for the most part, tends to be younger and more diverse in terms of racial/ethnic minority representation. In fact, participation by women in psychology has increased in many ways. In 1965, the percentage of doctorates awarded to women in

all fields of psychology was 20 percent; by 1989, this proportion had grown to 56 percent. Within the practice-oriented subfields, the trend has been similar, with women accounting for 57 percent of all new 1989 Ph.Ds compared to 21 percent in 1965. Over the next decade, it is unlikely that this situation will change, given that 62 percent of all full-time students in doctoral clinical, counseling, and school psychology programs are women (Pion et al. 1989).

Although the proportion of ethnic minority psychologists has remained relatively low compared to their representation in the U.S. population, the number of doctorates awarded to blacks, Asians, and Hispanics has inched upward since the early 1970s (Howard et al. 1986; Kohout and Pion 1990). In 1975, 42 blacks, 14 Hispanics, and 6 Asian-Americans were earning Ph.Ds in practice subfields; by 1989, these numbers had increased to 63, 63, and 29, respectively. Despite the fact that psychology has made considerable progress in attracting ethnic minorities to its ranks, this group as a whole remains significantly underrepresented in the profession and woefully small to address the mental health needs of these groups.

Professional Activities

Looking at current employment, the overwhelming majority of psychologists actively involved in providing mental health services are employed on a full-time basis (see table 4.6). It is interesting to note that over half (54 percent) of these individuals work in more than one employment setting. In fact, employment in multiple settings has become fairly commonplace; for example, in 1982, about two-fifths of doctoral level psychologists had a secondary employment position (Stapp and Fulcher 1983). This is in contrast to individuals who work less than 35 hours per week. Here the typical situation is to work part time in one position.

The primary and secondary employment settings of active mental health services providers in psychology are reported in table 4.8. Similar to psychiatry, a substantial percentage (48 percent) of all psychologists report that independent practice is their primary employment setting, and some level of involvement in an individual or group practice is the typical scenario. Academic settings comprise the second most frequent primary employment setting; almost one of every five psychologists list institutions of higher education as their primary employer. These settings are quite diverse, including university and college psychology departments (7 percent) and counseling centers (3 percent), medical schools (4 percent), and other types of professional schools (4 percent).

Fourteen percent of all active providers are primarily employed in hospital settings, and these individuals are distributed across general hospitals (5 percent), mental

hospitals (6 percent), and VA/military hospitals (4 percent). Approximately 12 percent are working in such outpatient settings as clinics, HMOs, and CMHCs. The remainder of individuals work in a host of other types of settings, including schools and other educational settings (3 percent) and government agencies (1 percent). This distribution is fairly similar to that for the pool of clinically trained psychologists (see table 4.7).

Clinically active psychologists working in more than one employment setting are most likely to be in independent practice (47 percent) or have an academic position (20 percent) as their secondary work environment (table 4.8).

As illustrated in table 4.9, the overwhelming majority of individuals who are eligible to provide services do so and consider this their major responsibility. Almost four-fifths of these individuals indicate that their primary activity is direct health and mental health services. In 1989, the median number of hours per week spent in services provision was 25; this figure increases to 30 for those individuals who are active providers. Teaching and administration each comprise the primary role for about another 6 percent of individuals.

At the same time, psychologists seldom are involved in one activity. Anywhere from 42 to 46 percent report that they are involved in educational efforts, administrative tasks, and a heterogeneous group of other activities. About 3 of every 10 psychologists are involved in research; in fact, slightly over one-quarter of all active providers have published an article in a refereed journal within the last 3 years.

Social Work

Social work has always been closely identified with the provision of public social services, such as income maintenance, child welfare, family planning, and other welfare issues. Social workers have also been major providers of mental health services since the early 1920s, when they were an integral part of the beginning of the child guidance movement. Social workers are trained to intervene when the individual and the environment do not mesh smoothly, causing discomfort or disruption for the individual or family, or demonstrating the need for social restructuring.

Thus, social workers are found in the public sector—public welfare and child welfare, as well as publicly funded health and mental health clinics, and public schools; in the private sector—family agencies, clinics, hospitals, and in private practice; in the workplace—employee assistance programs, alcohol and chemical dependency programs; in community organization settings—public housing, policy analysis for city councils, identifying and structuring new programs as the need is demonstrated; and in religious

settings—working for outreach programs and pastoral counseling.

The advent of psychoanalytic understanding and the impetus this gave to the mental health movement placed great emphasis on the individual and individual causation of so-called neuroses, as well as psychoses. The social work focus on the person-in-the-environment and the impact of this interaction on individuals and their psyches was a unique contribution to the mental health movement.

In addition, social work early identified the importance of the family as a central focus rather than an individual in isolation. Much early professional literature emphasized this importance and spoke of the family as the identified unit for treatment. This had an impact on the early child guidance movement, as well as other mental health efforts, and powerfully influenced the development of family therapy.

In the 1960s and 1970s, with the establishment and development of comprehensive community mental health centers, clinical social workers were heavily utilized and, in fact, provided a major proportion of outpatient mental health treatment services. In the 1980s, an increasing number of clinical social workers moved into full- or part-time private practice. As we move into the 1990s, private practice is the fastest growing setting for clinical social workers.

Demographic and Training Characteristics

Membership in the National Association of Social Workers (NASW) is limited to those persons who have a bachelor's, master's, or doctoral degree from a university program accredited by the Council on Social Work Education. Social work students enrolled in an accredited program are also eligible for student membership, and associate membership is available to other professionals working within the social work domain. The data reported here include only those members with at least a master's degree in social work who report themselves to be in direct or supervisory practice.

Membership in NASW has been rising at a steady rate since the inception of the Association in 1955 (from a merging of seven predecessor social work organizations). At the end of 1979, NASW membership was 79,473. At the end of June 1990, it was 129,092, a steady growth of about 5 percent per year. Of this total, 81,737 were master's or doctoral level social workers, not identified as retired.

These master's or doctoral level social work members of NASW represent about 70 percent of the universe of master's or doctoral level social workers in the country. That is, about 116,800 social workers at this level are estimated to be practicing in the United States.

The data in table 4.1 were obtained from membership application and membership renewal forms, which rou-

tinely request demographic data. This table shows that 81,737 master's or doctoral level members of NASW were engaged in direct or supervisory practice. In 1989, for the first time, members were asked to indicate if they were in full-time practice of at least 35 hours per week, or if they were in part-time practice of less than 35 hours per week. New members applying during this period were also asked for this information. Thus, 1989 is the first year for which this breakdown is available. The data indicate that 81 percent of these master's or doctoral level social workers were in full-time practice. The estimate of 19 percent of social workers in part-time work is consistent with data obtained previously on part-time employment of social workers.

Table 4.2 shows that social workers are predominantly female (72 percent). This may indicate that more females are graduating from social work programs than males. The age distributions for male and female social workers are very similar.

The distribution of clinically trained social workers varies widely from State to State (table 4.3), from a low of 8 per 100,000 residents in Mississippi to a high of 85 per 100,000 residents in Massachusetts. The rate for the District of Columbia of 102 per 100,000 is atypical, because that jurisdiction is wholly urban and includes NASW chapter members who live not only in the District of Columbia, but also in the nearby Maryland and Virginia suburbs.

Table 4.4 indicates those clinical social workers who are actively engaged in the provision of mental health services. The numbers follow closely those in table 4.3 due to the high percentage of social workers engaged in direct provision of services. A notable exception is the rate for the District of Columbia, which is 79 per 100,000 residents compared to 102 per 100,000 in table 4.3. This reflects the concentration of universities and administrative employment, particularly with the Federal Government. The distribution appears similar to that of the other mental health professions, with East and West South Central States showing the smallest social workers-to-population ratios.

Table 4.5 indicates that over one-third of the clinically trained social workers have had between 6 and 15 years of experience.

Professional Activities

Table 4.7 indicates the heavy emphasis on institutional settings for clinical social work practice. As their primary employment, two-thirds of the clinical social workers practice in places such as clinics, hospitals, and a variety of social agencies. Another 19 percent are in private individual or group practice, with 10 percent not answering and the remaining 4 percent in academic settings. Thirty-nine

percent of this group are in a medical (hospital, clinic, nursing home) setting.

For the 30 percent who have secondary employment, 49 percent are in individual or group private practice. This large number probably represents clinical social workers who have a full-time job in an institutional setting and a small private practice in the evenings and on weekends. Again, a large number, 43 percent of those with secondary employment, are in hospitals, clinics and other agencies. Medical settings account for 22 percent of those with secondary jobs. Eight percent of those with secondary jobs are in academic settings, twice the percentage of those whose primary setting is academia. This represents the popularity of teaching as a moonlighting job for those in full-time clinical practice.

Table 4.8 displays the distribution of those who are clinically active as well as clinically trained. The pattern of distribution is the same as in table 4.7.

Over two-thirds (72 percent) of clinically trained social workers are in direct service (including supervision), with the remainder in administration (19 percent) or other activities, such as teaching and research (table 4.9). The high percentage in administration indicates that social workers are increasingly being acknowledged as having administrative skills as well as functions and are being tapped for such managerial-level positions.

Psychiatric Nursing

The psychiatric nursing work force in the United States is frequently represented as composed of non-specialist prepared nurses of varying educational backgrounds (associate degree, diploma, bachelor of science) and specialists (master's degree). Frequently, these populations are neither differentiated nor are differences in preparation linked to practice patterns of nurses working in psychiatric care settings. A simple approach to clarifying who is practicing psychiatric nursing is to distinguish between nurses prepared as generalists, who have limited education and training in psychiatric nursing, and specialists in psychiatric nursing.

Generalist nurses are educated in associate degree (2-year community college programs) diploma (3-year hospital-operated programs) and Bachelor of Science in Nursing (4-year college or university) programs. Generalists preparation in psychiatric nursing typically includes clinical and academic course work in psychiatric nursing. Specialists in psychiatric nursing have successfully completed a 4-year undergraduate program in nursing and have received a master's degree in nursing with a specialty concentration in psychiatric nursing. Master's prepared psychiatric nurses typically complete 30-48 credits of grad-

uate course work specifically focused on psychiatric knowledge and practice and psychiatric nursing clinical applications.

While the bulk of the nursing work force in psychiatric settings is made up of generalist nurses, it is clear that master's-prepared psychiatric nurses better represent the specialty of psychiatric nursing since they are educated as psychiatric nurses rather than generalists. Finally, some psychiatric nurses complete doctoral programs in nursing and other disciplines. Psychiatric nurses may also be prepared and licensed in another mental health discipline such as social work or psychology.

Estimates for psychiatric nurses presented in tables 4.1 through 4.10 are from the 1988 National Sample Survey of Registered Nurses conducted by the Health Resources and Services Administration. In addition to these overall estimates, the information in this section is supplemented with results from the Certified Psychiatric Clinical Nurse Specialist Survey conducted by two of the authors (Drs. Fox and Merwin).

Demographic and Training Characteristics

In 1984, approximately 10,034 master's-prepared psychiatric nurses were working in nursing positions (table 4.1). In addition 2,070 master's-prepared psychiatric nurses were not working in nursing or not working at all. In 1988, approximately 10,567 master's-prepared nurses were working in nursing, and 2,478 were not working in nursing or not working at all. These data are important given the current and projected shortage of nurses. As will be noted, the rate of increase of psychiatric nurses pales in comparison to the rate of increase of psychiatric care episodes during the same period. The supply of psychiatric nursing manpower has been a continuing concern since the 1970s (Chamberlain 1987).

Ninety-six percent of master's-prepared psychiatric nurses are female (table 4.2).

Evidence from a statewide survey of all nurses employed in public mental health facilities documents that the public psychiatric nursing hospital work force is aging, as indicated by 43 percent of the psychiatric nursing work force being 46 years or older (Fox and Merwin 1989). Data reported in table 4.2 reinforce the notion that the psychiatric nursing work force, like the nursing work force in general, is aging, and younger nurses are not entering the specialty at a rate necessary to replace nurses lost through retirement. It is estimated that only 18 percent of the master's-prepared nurses are under 35, while approximately 34 percent are 45 years of age or older. Further, about 10 percent are 55 years of age or older.

One factor influencing the age of the psychiatric nursing work force not obvious from a review of these data is the

wide age range of nurses entering master's programs in psychiatric nursing. While a significant number of entering master's students in psychiatric nursing are between 25 and 29 years of age, it is not unusual for women to enroll in master's education in their thirties and forties. This pattern highlights a major difference between the psychiatry, psychology, social work, and psychiatric nursing work forces. Professional education in the other core professions routinely occurs early in the work life of profession members. This education in the profession early in work life provides some assurance that contribution as a professional will occur over a relatively long work life. In contrast, psychiatric nursing education frequently occurs later in work life leading to a decreased number of years of service as a professional.

As with all mental health professions, psychiatric nursing reflects serious underrepresentation of minorities in its membership. Approximately 96 percent of all female master's-prepared psychiatric nurses are white, only about 2 percent each are black and Hispanic, and less than 1 percent are Asian, Pacific Islander, or American Indian.

Table 4.5 shows that approximately 59 percent of the master's-prepared nurses in the United States in 1988 had completed degrees in the last 10 years. Further, only 18 percent had completed master's degrees in the past 2 years. About 25 percent had completed master's education 16 or more years ago. Given the major changes in knowledge about mental illness that have occurred in the past few years, psychiatric nursing must be concerned about the degree to which the work force preparation is relevant to current and future practice requirements. No data are available documenting patterns of continuing education among psychiatric nurses, but this information is important in projecting adequacy of the work force in the future.

The declining number of nurses entering the psychiatric nursing specialty relative to nurses entering other specialties (pediatrics, medical-surgical nursing, etc.) is also a major concern. While psychiatric nursing characteristically has attracted only 3-4 percent of all nurses, the availability of traineeship support from NIMH greatly increased the number of nurses entering psychiatric nursing relative to other nursing specialties. At the peak of NIMH funding of psychiatric nursing education, approximately 22 percent of all master's graduates in nursing were psychiatric nurses. In 1986-7, only 9.8 percent of all master's nurses graduates were psychiatric nurses (Chamberlain 1987).

A subset of these nurses continue their professional development through the process of American Nurses Association Certification as Clinical Specialists in either Adult or Child/Adolescent Psychiatric and Mental Health Nursing (C.S.). Certification as a clinical specialist requires 2 years of clinical practice after master's completion, documented ongoing clinical supervision of practice and therapy, and successful completion of an examination

administered by the American Nurses Association. Recertification as a specialist occurs on a 5-year basis and is dependent on documented continuing education and advanced practice. In 1989, 3,749 nurses were certified as Psychiatric Clinical Nurse Specialists. Of these, 3,366 were certified as Adult Specialists, with the remaining 383 individuals being Child-Adolescent Specialists.

Most certified clinical nurse specialists (64 percent) were between the ages of 35 and 49, but 11 percent of the respondents were 55 or older. Only 13 percent were under 35 years of age. Ninety-six percent of the certified specialists were female, while 95 percent were white. Eleven percent held doctorates; 75 percent of the doctorates were earned in the last 10 years. The certified specialists represent the most comprehensively prepared clinicians in psychiatric nursing, as well as the primary group of psychiatric nurses who have been successful in receiving third-party reimbursement for independent psychiatric nursing services.

Data gathered on geographic distribution of psychiatric nurses suggests that psychiatric nurses are very unevenly distributed across the United States (table 4.3). The New England region far outstrips all other areas of the country in the number of master's-prepared psychiatric nurses in relation to the population in the area.

In geographic areas with greater numbers of other core mental health professionals and more psychiatric care episodes, there are more psychiatric nurses. In the New England region, there are 15 master's-prepared nurses per 100,000 population. In sharp contrast is the East South Central region of the country, with only 1 psychiatric nurse for every 100,000 persons residing in the area. The norm for most areas of the country is between 3 and 5 psychiatric nurses per 100,000.

The regional geographic distribution of the certified specialists is also quite uneven. The number of certified specialists per 100,000 population includes: New England, 7; Middle Atlantic, 2; South Atlantic, 2; Pacific, 1; Mountain, 1; East North Central, 1; East South Central, 1; West North Central, 1; and West South Central, 0.4. State by State distribution is even more variable, ranging from Massachusetts' 10 per 100,000 population to 3 States with less than 0.3 per 100,000. In the New England region (an atypical area for the number of psychiatric professionals practicing in this area), Massachusetts clearly has many more certified clinical specialists per 100,000 population than other States in the region. Massachusetts also has the highest rate of psychiatrists, psychologists, and social workers of any State in the region. Other regions also reflect an uneven distribution of certified specialists in psychiatric nursing, although State-specific data for all master's-prepared nurses is not available. Clinical nurse specialist representation in the entire central part of the United States (East North Central, West North Central, East South Cen-

tral and West South Central) is significantly lower than any other region in the country. This paucity of psychiatric professionals in the entire central region of the country is not limited to psychiatric nursing, but also characterizes the other disciplines.

Professional Activities

A closer examination of work patterns of psychiatric nurses reveals that in 1984 approximately 7,703 worked full time and 2,331 worked part time (table 4.1). In 1988, the number of full-time employed master's-prepared psychiatric nurses is estimated at 7,719 and part-time employed master's-prepared psychiatric nurses is estimated at 2,848. While approximately 23 percent of the supply worked part time in 1984, nearly 27 percent worked part time in 1988.

The survey of Certified Psychiatric Clinical Specialists indicates that an estimated 2,681 certified specialists were working full time, and 848 were working part time in the United States in 1989. Thus, nearly 76 percent of these specialists are employed full time. In addition, 58 percent of these certified psychiatric nurses are employed in one setting, and 42 percent are employed in two or more settings. Similarly, of the 24 percent of these certified nurses employed part time, 62 percent are employed in only one setting, and 38 percent are employed in two or more settings.

Another factor of concern about psychiatric nursing is the type of settings in which psychiatric nurses practice and in how many settings they are practicing (table 4.7). In the past, psychiatric nurses tended to work primarily in a single setting: acute psychiatric care facilities. However, given the increased numbers of opportunities for psychiatric nurses to practice independently and the increased number of women working in more than one primary occupational position, changes in this pattern are to be expected. Further, given the tendency for third-party reimbursement for psychiatric nursing care to be tied to specialist certification, it is expected that these specialists will be employed in more than one setting. Of all psychiatric nurses, approximately 45 percent identify their primary employment setting as a hospital, 15 percent as a community mental health center, 13 percent as an academic setting, 7 percent as individual practice, 2 percent as group practice, just over 1 percent as an HMO, and only 0.3 percent as a nursing home.

The percentages of certified specialists working in each of the primary work settings are: hospitals, 43 percent; CMHCs, 11 percent; academia, 13 percent; individual practice, 16 percent; group practice, 5 percent; HMOs, 3 percent; and nursing homes, 0.9 percent. Only 17 percent of the certified specialists are paid through third-party reimbursement in their primary setting. Secondary sites of

employment of certified specialists reflect more individual and group practice (42 and 11 percent, respectively) and decreased hospital-based practice (17 percent). It appears likely that many certified psychiatric nurse specialists hold institutional (hospital based) primary positions and in addition are engaged in private practice. Research is needed to determine if clinical specialists are practicing in a secondary setting in private practice as a substitute for autonomous clinical practice in their primary work setting.

While the above information is helpful, it is also necessary to know what services psychiatric nurses are providing in their primary and secondary work settings. Of particular interest is the percent of time spent in direct care activities vs. other activities. Results in table 4.9 suggest that direct patient care (including supervision) is the primary work activity for about 59 percent of all psychiatric nurses. Teaching is the primary activity for 15 percent, and administration is the primary activity for 19 percent of psychiatric nurses. Direct service is clearly the primary activity of most psychiatric nurses. However, psychiatric nurses participate in a variety of activities during their usual work week (table 4.10) More than 84 percent provide direct patient care, 19 percent are involved in research, 37 percent in teaching, 57 percent in administration, and 64 percent in consultation.

Discussion

The information in this chapter is important in examining the current status of human resources and care delivery in mental health. Unfortunately, many critical issues are not addressed by these data. Given the increasing demand for cost-effective service, it is critical that research focus on determining the cost effectiveness of specific treatment and intervention outcomes. This necessary shift of attention away from the process of delivery to outcome will demand research on issues of economic and clinical substitutability of psychiatric professionals. Presently available data do not permit examination of these questions.

Other questions cannot be answered about how mental health professionals provide services. Additional information is needed on characteristics of the providers, clientele treated, actual services delivered, sources of referrals, and relationships with other health and mental health professionals. This information deficit plagues all major mental health professions. Given the severe consequences of psychiatric disability, it is essential that relevant policymakers work together to improve the quality of information cur-

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FOOTNOTE

- ¹ The Committee on the Biographical Directory and Manpower Data Collection had oversight of the 1982-83 American Psychiatric Association Professional Activities Survey. The members of that committee were Robert O. Pasnau, M.D. (Chairperson), Zebulon C. Taintor, M.D. (Vice-Chairperson), Robert L. Green, M.D., David J. Knesper, M.D., Lorrin M. Koran, M.D., Jerry M. Weiner, M.D., and Linda Topping, M.D.

Table 4.1. Changes in supply of clinically trained mental health personnel, by discipline and total number of hours worked, for specified years

Hours worked by discipline	1982	1983	1984	1988	1989
Psychiatry					
35 hours or more	27,865				
Less than 35 hours	2,769				
Total	30,642				
Psychology¹					
35 hours or more		39,855			48,785
Less than 35 hours		4,725			7,745
Total		44,580			56,530
Social work²					
35 hours or more					65,880
Less than 35 hours					15,857
Total					81,737
Psychiatric nursing³					
Full time ⁴			7,703	7,719	
Part time			2,331	2,848	
Total			10,034	10,567	

¹ The 1983 estimate is from Stapp et al. (1985). Because this study did not differentiate between full- and part-time employment, information from previous research (Stapp and Fulcher 1983) was used to provide an estimated breakdown.

² The total was distributed into full and part time based upon 80.6 percent and 19.4 percent, respectively, as determined from 39,239 social workers who reported this information in 1989, the first year it was collected.

³ In 1984, an estimated 2,070 nurses, and in 1988 an estimated 2,478 nurses were either not working in nursing or not working at all.

⁴ Full time defined as employed by an agency or institution and scheduled to work the normal "full" work week throughout the normal work year as defined by agency and, if self-employed, are generally available for work throughout the year during a normal full work week.

Part time is defined as working less than the normal full work week and/or for less than the normal year and if self-employed, working only a segment of the work week or work year.

Table 4.2. Percentage of clinically trained mental health personnel, by discipline, sex, age, and race, for specified year

Sociodemographic characteristics	Discipline and year			
	Psychiatry 1982	Psychology 1989	Social work 1989	Psychiatric nursing 1988
	Percent			
Total (N)	(30,642)	(56,530)	(81,737)	(10,567)
Male (N)	(25,348)	(35,275)	(23,050)	(444) ¹
Under 35	7.3	5.7	5.9	
35-39	15.2	17.7	21.5	
40-44	15.4	24.5	25.7	
45-49	14.5	18.3	18.7	
50-54	13.3	10.1	12.7	
55-59	12.6	8.2	9.0	
60-64	9.9	7.1	5.6	
65-69	5.3	4.5	0.7	
Over 69	6.5	3.9	0.2	
American Indian/Alaska Native	0.4	0.2	0.7	
Asian/Pacific Islander	8.5	1.0	1.6	
Hispanic	5.9	1.5	3.0	
Black (not Hispanic)	1.4	1.3	4.2	
White (not Hispanic)	83.9	96.1	88.9	
Not specified			1.7	
Female (N)	(5,294)	(21,255)	(58,687)	(10,123)
Under 35	11.7	10.9	6.7	17.6
35-39	19.5	21.9	22.9	21.7
40-44	16.2	24.7	23.8	27.0
45-49	13.0	16.2	19.4	14.6
50-54	11.3	8.9	11.7	9.2
55-59	9.8	6.9	8.3	2.6
60-64	8.3	4.7	5.7	3.4
65-69	4.6	2.9	1.2	} 3.9
Over 69	5.7	2.6	0.3	
American Indian/Alaska Native	0.1	0.2	0.6	0.6
Asian/Pacific Islander	22.7	1.1	1.6	0.3
Hispanic	3.7	1.8	2.8	1.5
Black (not Hispanic)	3.1	2.0	7.3	1.6
White (not Hispanic)	70.5	94.9	86.5	96.0
Not specified			1.2	

¹ Because of small sample estimates for the male population, estimates are provided for the total male population only.

Table 4.3. Number and rate per 100,000 resident population of clinically trained mental health personnel, by discipline, United States and each State, for specified year¹

Region and State	Discipline and year							
	Psychiatry 1982		Psychology 1989		Social work 1989		Psychiatric nursing 1988	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
United States total ²	30,300	13.1	56,530	22.8	81,163	32.8	10,567	4.3
New England	2,874	23.1	5,320	40.9	8,799	67.7	1,888	14.7
Connecticut	771	24.4	1,120	34.4	1,921	58.9		
Maine	124	10.9	300	24.9	513	42.6		
Massachusetts	1,640	28.4	3,170	54.1	4,959	84.6		
New Hampshire	115	12.1	300	26.9	510	45.7		
Rhode Island	131	13.7	230	23.1	629	63.1		
Vermont	93	18.0	200	35.9	267	47.9		
Middle Atlantic	7,622	20.7	12,110	32.4	19,761	52.8	2,032	5.4
New Jersey	1,025	13.8	2,000	25.6	3,646	46.6		
New York	4,958	28.1	7,240	40.8	12,610	70.9		
Pennsylvania	1,639	13.8	2,870	24.2	3,505	29.6		
East North Central	4,035	9.7	8,180	19.5	15,076	35.9	1,290	3.1
Illinois	1,240	10.8	2,510	21.6	4,914	42.4		
Indiana	314	5.7	840	15.2	1,475	26.6		
Michigan	1,080	11.9	1,610	17.4	4,437	47.8		
Ohio	973	9.0	2,340	21.7	2,784	25.8		
Wisconsin	428	9.0	880	18.3	1,466	30.5		
West North Central	1,461	8.4	3,190	18.0	4,826	27.3	612	3.5
Iowa	168	5.8	300	10.8	638	22.9		
Kansas	310	12.9	450	18.1	786	31.6		
Minnesota	326	7.9	1,050	24.4	1,392	32.4		
Missouri	463	9.4	930	18.0	1,477	28.6		
Nebraska	111	7.0	270	17.0	317	19.9		
North Dakota	42	6.3	110	16.6	114	17.7		
South Dakota	41	5.9	80	16.3	102	14.4		
South Atlantic	4,779	12.5	8,500	19.7	11,582	26.9	1,680	4.0
Delaware	83	13.8	140	21.3	168	25.5		
District of Columbia	509	77.1	660	107.3	629	102.2		
Florida	1,060	10.2	2,110	16.8	2,509	20.0		
Georgia	508	9.0	1,050	16.1	1,128	17.3		
Maryland	1,032	24.2	1,690	36.2	2,935	62.9		
North Carolina	540	9.0	1,120	17.0	1,394	21.1		
South Carolina	236	7.4	320	9.1	570	16.2		
Virginia	706	12.9	1,250	20.6	1,996	19.7		
West Virginia	105	5.4	160	8.6	253	13.5		
East South Central	896	6.0	1,850	11.9	1,944	12.5	210	1.4
Alabama	196	5.0	370	8.9	219	12.1		
Kentucky	265	7.2	370	9.9	606	16.1		
Mississippi	117	4.6	230	8.8	212	7.9		
Tennessee	318	6.8	880	17.8	907	18.3		

Table 4.3. Number and rate per 100,000 resident population of clinically trained mental health personnel, by discipline, United States and each State, for specified year¹ (continued)

Region and State	Discipline and year							
	Psychiatry 1982		Psychology 1989		Social work 1989		Psychiatric nursing 1988	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
West South Central	1,978	7.8	3,660	13.2	4,946	17.9	464	1.7
Arkansas	126	5.5	220	9.1	319	13.2		
Louisiana	358	8.2	400	8.9	1,205	26.7		
Oklahoma	194	6.1	390	11.9	609	18.5		
Texas	1,300	8.5	2,650	15.2	2,813	16.1		
Mountain	1,189	9.9	3,240	23.5	3,651	26.5	437	3.3
Arizona	279	9.8	980	26.9	925	25.3		
Colorado	488	16.0	1,040	30.7	1,290	38.0		
Idaho	36	3.7	110	10.9	143	14.1		
Montana	38	4.7	140	17.3	135	16.7		
Nevada	68	7.7	170	16.2	317	30.2		
New Mexico	140	10.3	350	21.9	327	20.5		
Utah	118	7.6	360	20.6	448	25.6		
Wyoming	22	4.4	90	17.9	66	13.1		
Pacific	5,466	16.5	10,480	27.8	10,578	28.1	1,954	5.3
Alaska	40	9.1	100	17.7	219	38.8		
California	4,483	18.1	8,420	29.4	7,405	25.8		
Hawaii	172	17.3	270	24.1	443	39.5		
Oregon	294	11.1	690	25.1	989	35.9		
Washington	477	11.2	940	21.7	1,522	33.0		

¹ State population estimates were taken from U.S. Bureau of the Census, *Current Population Reports*, for specified year.

² Totals by discipline reported in this table are less than totals for other tables on clinically trained mental health personnel due to missing data, exclusion of U.S. territories, and exclusion of U.S. military personnel and other citizens residing overseas.

Table 4.4. Number and rate per 100,000 resident population of clinically active mental health personnel, by discipline, United States and each State, for specified year¹

Region and State	Discipline and year							
	Psychiatry 1982		Psychology 1989		Social work 1989		Psychiatric nursing 1988	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
United States total ²	29,425	12.7	41,260	16.7	67,327	27.2	NA	NA
New England	2,802	22.5	3,950	30.4	7,408	57.0		
Connecticut	752	23.8	830	25.5	1,584	48.6		
Maine	118	10.4	220	18.3	474	39.4		
Massachusetts	1,603	27.8	2,350	40.1	4,165	71.0		
New Hampshire	113	11.9	230	20.6	437	39.2		
Rhode Island	130	13.6	170	17.1	533	53.5		
Vermont	86	16.6	150	26.9	215	38.6		
Middle Atlantic	7,402	20.1	8,890	23.7	16,382	43.8		
New Jersey	991	13.3	1,480	18.9	3,050	39.0		
New York	4,820	27.3	5,310	29.9	10,450	58.8		
Pennsylvania	1,591	13.4	2,100	17.7	2,882	24.3		
East North Central	3,925	9.4	5,890	14.0	12,471	29.7		
Illinois	1,208	10.5	1,770	15.3	4,059	35.0		
Indiana	305	5.5	600	10.8	1,203	21.8		
Michigan	1,053	11.6	1,170	12.6	3,722	40.2		
Ohio	944	8.7	1,700	15.8	2,244	20.8		
Wisconsin	415	8.7	650	13.5	1,243	25.9		
West North Central	1,434	8.3	2,310	13.1	4,034	22.8		
Iowa	161	5.6	210	7.8	531	19.1		
Kansas	305	12.7	320	12.9	655	26.4		
Minnesota	326	7.9	770	17.9	1,173	27.3		
Missouri	451	9.2	680	13.2	1,241	24.0		
Nebraska	110	6.9	190	11.9	255	16.0		
North Dakota	41	6.1	80	12.0	92	13.9		
South Dakota	40	5.8	60	8.5	87	12.3		
South Atlantic	4,620	12.1	6,210	14.4	9,433	21.9		
Delaware	82	13.6	100	15.2	138	21.0		
District of Columbia	483	73.2	480	78.0	487	79.2		
Florida	1,029	9.9	1,510	12.0	2,038	16.3		
Georgia	493	8.7	790	11.8	895	13.7		
Maryland	993	23.3	1,260	27.0	2,448	52.5		
North Carolina	523	8.7	820	12.4	1,132	17.1		
South Carolina	225	7.1	240	6.8	455	13.0		
Virginia	688	12.6	910	15.0	1,644	27.1		
West Virginia	104	5.3	120	6.4	196	10.5		
East South Central	872	5.9	1,320	8.5	1,751	11.3		
Alabama	191	4.9	260	6.3	395	9.5		
Kentucky	116	4.6	270	8.5	488	13.0		
Mississippi	313	6.7	160	6.0	156	5.8		
Tennessee	252	6.8	630	12.8	712	14.4		

Table 4.4. Number and rate per 100,000 resident population of clinically active mental health personnel, by discipline, United States and each State, for specified year¹ (continued)

Region and State	Discipline and year							
	Psychiatry 1982		Psychology 1989		Social work 1989		Psychiatric nursing 1988	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
West South Central	1,929	7.6	2,670	9.7	4,028	14.6	NA	NA
Arkansas	120	5.2	160	6.6	251	10.4		
Louisiana	351	8.0	290	6.4	989	21.9		
Oklahoma	188	5.9	280	8.5	513	15.6		
Texas	1,270	8.3	1,940	11.1	2,275	13.0		
Mountain	1,153	9.6	2,380	17.3	2,980	21.7		
Arizona	270	9.5	730	20.0	763	20.9		
Colorado	475	15.6	740	21.8	1,051	30.9		
Idaho	35	3.6	90	8.9	122	12.0		
Montana	37	4.6	110	13.6	119	14.7		
Nevada	66	7.5	130	12.4	255	16.0		
New Mexico	134	9.9	260	16.3	253	15.9		
Utah	116	7.5	250	14.3	368	21.0		
Wyoming	20	4.0	70	13.9	49	9.7		
Pacific	5,288	15.9	7,640	20.2	8,840	23.5		
Alaska	38	8.6	80	14.2	171	30.3		
California	4,334	17.5	6,110	21.4	6,176	21.6		
Hawaii	163	16.4	200	17.8	357	31.8		
Oregon	285	10.8	500	18.2	856	31.1		
Washington	468	11.0	750	16.3	1,280	27.7		

¹ State population estimates were taken from U.S. Bureau of the Census, *Current Population Reports*, for specified year.

² Totals by discipline reported in this table are less than totals for other tables on clinically active mental health personnel due to missing data, exclusion of U.S. territories, and exclusion of U.S. military personnel and other citizens residing overseas.

NA = Data not available in this form.

Table 4.5. Percentage of clinically trained mental health personnel, by number of years since completion of highest professional degree, for specified year

Discipline	(N)	Number of years since completion						Not specified
		0-2	3-5	6-10	11-15	16-20	21+	
Psychiatry (1982) ...	(30,642)	< 0.1%	2.0%	13.6%	16.0%	15.7%	52.7%	—
Psychology (1989) ..	(56,530)	4.9	13.9	24.8	21.2	15.4	19.7	—
Social work (1989) ..	(1,737)	3.3	12.3	18.8	16.6	10.7	11.6	26.6%
Psychiatric nursing (1988)	(10,567)	17.8	15.0	25.8	16.5	15.3	9.5	—

Table 4.6. Percentage of clinically active mental health personnel, by discipline, employment status, and number of employment settings, for specified year

Employment status	Discipline and year			
	Psychiatry 1982	Psychology 1989	Social work 1989	Psychiatric nursing 1988
Full time (N)	(27,338)	(35,524)	(57,307)	NA
One setting	32.0%	46.0%	NA	
Two or more settings	68.0	54.0		
Part time (N)	(2,410)	(5,736)	(14,327)	NA
One setting	45.6	61.5	NA	
Two or more settings	54.4	39.5		

¹ The total was distributed into full and part time based upon 80 percent and 20 percent, respectively, as determined from 34,701 social workers who reported this information in 1989, the first year it was collected.

NA = Data not available in this form.

Table 4.7. Percentage of clinically trained mental health personnel, by discipline and primary and secondary employment setting, for specified year

Employment setting	Discipline and year			
	Psychiatry 1982	Psychology 1989	Social work 1989	Psychiatric nursing 1988
Primary employment setting (N)	(30,642)	(56,530)	(81,737)	(10,567)
Hospital ²	26.0%	13.1%	20.8%	44.8%
General hospital		4.6		} 38.2
Public psychiatric hospital		3.1		
Private psychiatric hospital	6.2	2.3		
Federal hospital		3.2		6.6
Clinic	6.2	11.4	16.9	16.9
CMHC	1.2	4.4		15.4
Outpatient mental health clinic	5.0	2.7		
Specialized mental health clinic		3.4		
HMO		1.0		1.5
Individual practice	} 52.5	33.3	13.7	6.7
Group practice		9.3	5.0	1.8
Nursing home		0.1	1.7	0.3
Academic setting	9.7	20.9	4.8	13.4
Social service agency			27.4	
Other/not specified	5.5	11.9	9.7	16.1
Secondary employment setting (N)	NA	(32,618)	(24,837)	NA
Hospital		8.6	6.9	
General hospital		4.8		
Public psychiatric hospital		0.7		
Private psychiatric hospital		2.6		
Federal hospital		0.6		
Clinic		11.1	12.2	
CMHC		2.8		
Outpatient mental health clinic		4.0		
Specialized mental health clinic		3.9		
HMO		0.3		
Individual practice		36.3	35.7	
Group practice		8.1	13.0	
Nursing home		0.1	3.3	
Academic setting		20.4	8.1	
Social service agency			24.1	
Other/not specified		15.4	5.7	

¹ In some cases, information was aggregated from subcategories to match these settings.

² The three hospital categories reported for psychiatrists were private psychiatric hospitals (6.2 percent), State and Federal hospitals (12.7 percent), and other hospitals (7.0 percent).

NA = Data not available in this form.

Table 4.8. Percentage of clinically active mental health personnel, by discipline and primary and secondary employment setting, for specified year

Employment setting	Discipline and year			
	Psychiatry 1982	Psychology 1989	Social work 1989	Psychiatric nursing 1988
Primary employment setting (N)	(29,748)	(41,260)	(71,634)	NA
Hospital ¹	25.8%	13.9%	20.5%	
General hospital		4.8		
Public psychiatric hospital		3.2		
Private psychiatric hospital	6.2	2.4		
Federal hospital		3.5		
Clinics	6.2	12.0	16.7	
CMHC	1.1	4.6		
Outpatient mental health clinic	5.1	2.8		
Specialized mental health clinic		3.4		
HMO		1.1		
Individual practice	} 53.3	38.0	15.4	
Group practice		10.4	5.7	
Nursing home		0.1	1.7	
Academic setting	9.6	17.4	0.0	
Social service agency			30.3	
Other/not specified	4.9	8.3	9.7	
Secondary employment setting (N)	NA	(21,373)	(21,433)	NA
Hospital		9.1	7.3	
General hospital		5.0		
Public psychiatric hospital		0.7		
Private psychiatric hospital		2.8		
Federal hospital		0.5		
Clinics		11.3	12.8	
CMHC		3.0		
Outpatient mental health clinic		4.1		
Specialized mental health clinic		3.9		
HMO		0.4		
Individual practice		39.1	35.2	
Group practice		8.2	13.2	
Nursing home		0.1	3.5	
Academic setting		19.6	8.0	
Social service agency			15.9	
Other/not specified		12.6	4.1	

¹ The three hospital categories reported for psychiatrists were private psychiatric hospitals (6.2 percent), State and Federal hospitals (12.8 percent), and other hospitals (6.8 percent).

NA = Data not available in this form.

Table 4.9. Percentage of clinically trained mental health personnel, by discipline and primary work activity, for specified year

Primary work activity	Discipline and year			
	Psychiatry 1982	Psychology 1989	Social work 1989	Psychiatric nursing 1988
(N)	(30,642)	(56,530)	(81,737)	(10,567)
Patient care/direct service ¹	87.2%	79.4%	71.9%	59.2%
Research	2.8	4.0	0.4	0.8
Teaching	2.0	5.9	4.5	14.6
Administration	6.1	5.9	18.8	19.4
Other activities	2.0	4.8	4.3	6.0 ²

¹ Includes supervision.

² Other activities relates only to consultation.

Table 4.10. Percentage of clinically trained mental health personnel involved in each type of work activity, by discipline, for specified year¹

Type of work activity	Discipline and year			
	Psychiatry 1982	Psychology 1989	Social work 1989	Psychiatric nursing ² 1988
(N)	NA	(56,530)	NA	(10,567)
Patient care/direct service		87.6%		84.5%
Research		29.8		19.4
Teaching		42.2		37.3
Administration		43.9		56.6
Other activities		45.7		64.2 ³

¹ Percentages will not sum to 100 because clinically trained mental health personnel can be involved in more than one type of work activity.

² Percent of nurses who spent any time in their usual work week in the activity.

³ Other activities relates only to consultation.

NA = Data not available in this form.

Appendix C

Sources and Qualifications of Data – Chapter 4

1982-83 American Psychiatric Association Professional Activities Survey

Scope of the survey.—The 1982-83 Professional Activities Survey (PAS) of the American Psychiatric Association (APA) was a full-universe survey of all U.S. physicians identified as psychiatrists in the APA Masterfile as of December 1982. At that time, the Masterfile contained records on 38,119 individuals with U.S. mailing addresses. That total included 26,835 APA members and 11,284 non-member physicians who had identified themselves as psychiatrists.

The survey of APA members was initially mailed out in September 1982. Followup mailings were sent out in November 1982 and at the end of January 1983.

Of the 11,284 nonmembers, the APA had reasonably accurate and current addresses on 8,000. Questionnaires were mailed to these 8,000 in August 1983, and a followup mailing was sent out in December of that year.

Response rates.—Respondents were defined as those returning questionnaires with sufficient information to determine their work status. By this definition, 20,140 members (75.1 percent) and 1,236 nonmembers (15.5 percent) responded. Thus, the total number of respondents to both surveys was 21,376 or 61.4 percent of all those to whom questionnaires were mailed. Some 19,735 respondents were subsequently identified as “active in psychiatry,” which is defined as practicing primarily the medical specialty of psychiatry and working at least part time in psychiatry (though not necessarily as a clinician) as of December 31, 1982. The tables on psychiatrists that appear in this report show estimated population statistics based on data from those 19,735 active respondents.

Data imputations.—A two-stage weighting and imputation process was used to ameliorate overrepresentations of males, U.S. and Canadian medical school graduates, non-minorities, board-certified psychiatrists, and those primarily engaged in private practice. The first stage involved the computation and use of a set of case weights that took into account respondent and population distributions of sex,

year of medical school graduation, place of medical education, primary employment setting, and principal professional activity. By this method, the weighted frequency distributions on those variables were adjusted to more closely approximate the population distributions.

The second stage used those same criterion variables to group respondents into cells and to replace missing data in selected fields with values obtained by averaging the data provided by other respondents in the same cell. Details of the imputation procedure are reported in “Correcting for Nonresponse in the APA’s 1983 Professional Activities Survey,” an unpublished report submitted to NIMH by the APA in 1986.

1989 American Psychological Association Member Survey

Who should be counted as a mental health services provider in psychology?—Questions about human resources for providing mental health services are neither trivial nor necessarily easy to answer. Rather, information on the number of providers, their training and credentials, and the types of services they provide is crucial to policy deliberations concerning the need for new initiatives that address current health problems (e.g., seriously emotionally disturbed children), developing and augmenting training programs to meet these needs, and evaluating the impact of such national programs as Medicare and CHAMPUS on both the providers and recipients of services. However, timely and accurate data on practitioners remain a relatively scarce commodity, and even basic attempts to determine the size of the provider population have often resulted in quite disparate figures.

There are several reasons for these discrepancies. Some can be traced to a counter’s naivete about psychology as a discipline (e.g., don’t all psychologists treat patients?). More frequently, these differences stem from varying views about what constitutes mental health services and thereby who is qualified to competently deliver those services. The lack of Federal resources for the adequate development and maintenance of a comprehensive data set on the men-

tal health services delivery system, including the personnel who staff it, has only compounded the problem.

The one exception to this situation was the 1983 Census of Psychological Personnel, an effort funded by the Health Resources and Services Administration and conducted by APA. As previously described, this project set out to enumerate the entire population of individuals trained and/or working in psychology and then to survey these individuals for the purposes of identifying their levels of training and involvement in various activities (e.g., research and direct client care). The results clearly indicated that, in comparison to the total pool of psychological personnel, a much smaller subset of individuals were involved in mental health services in some capacity, and fewer still had received the comprehensive training required for providing a wide range of services. Reducing this number even further was the fact that many qualified providers are only involved in direct services delivery on a limited part-time basis.

Consequently, in determining the actual number of mental health service providers in psychology and their characteristics, one must consider the type and amount of training along with the appropriate credentials needed to deliver services. In the analyses described below, we have chosen those criteria that we feel best represent the two groups of interest—active practitioners and those who could practice if they chose to do so. These criteria center around the following:

- *Licensure as a psychologist.* In all 50 States and the District of Columbia, licensure by a State board of psychological examiners is the bottom line for psychological practice. Similar to other professions, these licensing statutes are designed in part to protect the public by ensuring that minimum training and competency requirements have been met by practitioners. In terms of active providers, licensure is an important prerequisite.
- *Doctoral degree in psychology.* Being qualified to provide the full spectrum of mental health services necessitates a significant amount of advanced and highly specialized training in order to function independently. In psychology, this has been defined as the doctoral degree, typically awarded in a major specialty recognized for preparing an individual to practice independently (see below). The overwhelming majority of State licensing laws now require that individuals must have a doctoral degree in psychology to be eligible for the licensing exam. Further, the major Federal legislation granting recognition of psychologists as independent providers for third-party payment has increasingly made the doctoral degree a criterion for eligibility.
- *Training in mental health services.* Psychology is a discipline with many diverse subfields, only some of

which are involved in providing direct services. For the purposes of accrediting psychology training programs, three major practice specialties are currently recognized—clinical, counseling, and school psychology. In addition, there are a host of other specialties and subspecialties with a strong mental health services component, which have been incorporated by predoctoral and postdoctoral training programs to varying degrees. Typically, these specialties are focused around providing services to a specific target population or in a particular area (e.g., clinical neuropsychology, health psychology, forensic psychology, and pediatric psychology). Thus, in enumerating mental health service providers in psychology, the field of both one's doctoral degree and current employment must be considered, given that not all fields train individuals for service delivery (e.g., cognitive psychology, psychometrics, and psychobiology).

Differential use of these criteria, along with historical changes in the regulation of the profession, accounted for most of the variability in previous counts or estimates of mental health personnel in psychology. For example, simple counts of licensed psychologists, unless they are unduplicated, do not consider the fact that individuals may be licensed in more than one State—a situation that is typical in such large metropolitan areas as New York City and Washington, D.C. Even unduplicated counts of licensed individuals are insufficient. Although most State statutes now require a doctoral degree for licensure as a psychologist, this has not always been the case. Thus, individuals with less than a doctoral degree may have been “grandfathered in” by revised laws that upgraded the requirements for practice. While this is not a sizable group, it suggests that subdoctoral personnel might be excluded in many attempts to enumerate providers, particularly when the figures are to be used in making decisions about the adequacy of current and projected supply. This is not to say that these individuals have no role in services provision, but rather that it is a restricted one, typically confined to those settings with personnel who can provide the appropriate supervision. In determining the current and projected availability of qualified personnel, however, it is important to focus on individuals who have undergone the complete sequence of advanced courses and practica experiences that imbue them with the flexibility to respond to changing services needs, settings, and priorities.

Another problem with relying on counts of licensed psychologists is that, although the primary aim of licensure laws is to identify those individuals who are competent in the traditional areas of clinical, counseling, and school psychology, there now are many new applied areas in non-practice fields where licensure is being sought both by graduates and their employers (e.g., environmental and

industrial-organizational psychology). Some States even encourage individuals in these subfields to become licensed. Whereas States typically have specific mechanisms for identifying psychologists qualified to provide mental health services (e.g., certificates and required practica and internships), the laws themselves remain generic, and it is rare that such distinctions are encoded in existing data bases on providers.

The APA member survey.—The majority of data on psychologists reported in chapter 4 were derived from the 1989 APA Member Survey. This survey is conducted every 4 years and involves a census of all individuals who belong to the Association. The purpose of the survey is twofold: (1) to compile individual listings on APA members for formal publication in the 1989 *Directory of the American Psychological Association*, and (2) to gather data on demographics, employment, and professional activities that can be used to describe and monitor the characteristics of Association members.

In Section I of the questionnaire, individuals were asked to provide basic biographical information, including their current mailing address, date of birth, field and year of highest degree, major field and specialties, position title, name of employer, and licensure status. As is explicitly stated in the survey instructions, responses to this section were to comprise the individual's published entry in the 1989 *Directory of the American Psychological Association*. For the 1989 survey, members who had joined the Association prior to September 1988 and who had previously provided this information upon their election to membership received a survey where this information had been preprinted. They were then instructed to check the accuracy of the data and to make any necessary revisions.

Section II of the questionnaire requested more detailed data, including: (1) the nature of the person's employment, such as type of primary and secondary employment setting and typical number of hours spent per week in different work activities; (2) involvement as a psychologist in specific efforts within the past 3 years, such as whether the individual had published an article in a refereed journal, received a grant/contract to conduct research from an outside agency, provided mental health services to patients in an inpatient setting, or taught an undergraduate psychology course; and (3) additional demographic information—race, ethnicity, and receipt of professional degrees in fields other than psychology. Because many of the items in this section were being asked for the first time, all survey recipients were asked to provide these data.

Survey and mailing procedures.—In October 1988, the 1989 APA Member Survey was sent to all individuals elected to membership in the Association before September 1988. Only one mailing of the survey was conducted, and all responses received before April 1989 were

included. Of the 68,320 members who received the survey, 73.3 percent returned a questionnaire with Section 1 completed, either updating the preprinted biographical information or indicating that it was correct as printed. Slightly over two-thirds (68.7 percent) of survey recipients also provided usable responses to items contained in Section II of the survey.

Looking at the group of interest in chapter 4, the response rates for mental health service providers were somewhat higher. Based on licensure data collected independently from State licensing boards, 42,929 licensed APA members were known to be U.S. residents. Available information as to highest degree indicated that 90.6 percent (or 38,887) held the doctorate. This group is the most relevant in terms of APA members who may be qualified to provide mental health services. Of these individuals, 79.3 percent provided some information for the 1989 survey that could be used in determining their qualifications and/or involvement as a mental health service provider.

Procedures for identifying health service providers in psychology.—As previously mentioned, individuals who are trained and/or employed in psychology work in a wide range of subfields and career roles, not all of which are directed at mental health services. For example, some doctorate degree holders in psychology are faculty members in universities, teaching courses and conducting research in educational, cognitive, or physiological psychology, while others work as industrial-organizational psychologists in corporations, advising management on ways to increase employee productivity and satisfaction. As such, these psychologists are not part of the active mental health personnel work force in psychology nor are they necessarily trained to provide services.

The criteria for inclusion as an active health services provider in psychology were as follows: (1) a U.S. resident, (2) a doctoral degree, (3) information obtained from State licensure boards identified the individual as qualified by one or more State boards for the independent practice of psychology,¹ (4) the person indicated current employment, and (5) the individual reported typically spending 1 or more hours a week in the provision of health and mental health services.²

Those who are clinically trained to provide mental health services—a slightly larger group—included all active providers in addition to (1) those who were licensed and indicated that they were trained and/or working in a practice-related area of psychology³ but who also reported no current involvement in direct client services,⁴ and (2) those who were not licensed but indicated that they received their doctorate in a practice-related field.⁵

Given these criteria and the information available on members, attempts were made to derive estimates of the populations of both clinically active and clinically trained

personnel in psychology rather than to limit the figures to the APA membership. First, estimates were made of active providers in APA by taking the number of U.S. resident, doctoral, licensed APA members in each State and adjusting it accordingly, based on analyses that showed 77.6 percent of this population to be active providers (this percentage did not vary significantly across States). In order to "guesstimate" the population of all active psychologists (regardless of APA membership), data from the 1983 Census of Psychological Personnel were used; in this study, results indicated that 73.2 percent of all doctoral providers in psychology were APA members. This same percentage also was used in estimating the number of clinically trained personnel, along with the finding that active providers represented 75.6 percent of the clinically trained population and incorporating the number of clinical, counseling, and school psychology Ph.Ds and Psy.Ds produced by institutions in each State in 1989.

Qualifications of the data.—As previously mentioned, the information on psychologists reported in the tables in chapter 4 is based on analyses of the APA membership coupled with earlier data collected on the population of all psychologists, including those who did not belong to the Association. The rationale for this approach is based on the unavailability of more recent concrete information to use in ascertaining the degree to which members accurately represent the population of doctoral psychologists trained to provide and/or are actively involved in mental health services in the United States. However, previous research on both APA and non-APA members indicated that the APA membership has been quite representative of doctoral-level providers in psychology in terms of demographic characteristics, employment settings, and involvement in services. Given the growing number of practitioners in APA, it was assumed that this situation has not drastically changed since the conduct of this study in 1983. We understand that these estimates are less precise than what we would have preferred; however, other data and research available to us on trends in psychology and the APA membership (e.g., licensure data) suggest that their application is not farfetched and provide information that better serves the purposes of chapter 4 as contrasted to relying solely on data restricted to the APA membership.

We also recognize that, given that not all members responded to the APA survey, the extent to which the results are affected by nonresponse bias is not clear. Basic biographical information reported in previous APA Directory surveys was available for some of these individuals, and analyses indicated few marked differences in terms of highest degree, sex, and age. However, comparisons could not be made with regard to employment data, thus restricting our ability to explicitly determine whether certain sub-

groups (e.g., practitioners in organized settings) were less likely to respond.

Once again, it should be noted that subdoctoral degree holders in psychology also work in the mental health sector, typically providing services to clients under the supervision of a doctoral psychologist, and that some of these individuals are licensed for independent practice as a result of previous State licensing laws that subsequently have been revised. These individuals were not included in the analyses presented in chapter 4 for two reasons. First, the data are based on the APA membership, and previous research has indicated that this group is not representative of subdoctoral personnel. Second, current licensing laws in the majority of States now require a doctoral degree in psychology in order to be eligible to take the licensure exam, resulting in this group becoming an increasingly small minority of practitioners qualified to practice independently as a psychologist.

For additional information on the data presented in chapter 4 and on characteristics of psychologists, contact the Office of Demographic, Employment, and Educational Research, American Psychological Association, 1200 Seventeenth Street, N.W., Washington, DC 20036.

Data Collection for the National Association of Social Workers

The data for NASW were collected from both applications for new membership and from annual membership renewal forms. As the data are collected, they are entered into the membership data base on a continuous basis. The data presented in tables in chapter 4 were collected from January 1 to December 31, 1989.

The data collection forms ask for the highest degree awarded, either in social work or in another field, sex, and date of birth. Other questions request information about:

- *ethnic origin*;
- *auspices* of both primary and/or secondary jobs (auspices include such things as public, private, sectarian, etc.);
- *function* on the job (primary and/or secondary), such as direct service, supervision, research;
- *setting* of primary and/or secondary jobs, such as social service agency, private practice, hospital, outpatient facility;
- *practice area* of primary and/or secondary jobs, such as children and youth, family services, mental health, school social work, alcohol/drug abuse, services to the aged;
- *current annual salary* from primary (full-time or part-time) and from secondary (if any) jobs; and
- *total years* of social work experience since first social work degree.

The data were sorted for those qualified as clinical social workers who had at least a master's degree in social work, with direct service or supervision as their function.

Certified Psychiatric Clinical Nurse Specialist Survey

Survey design.—All psychiatric clinical nurse specialists identified by the ANA as being certified as of January 1989 were included in the scope of the survey.⁶ The ANA provided a current mailing list of specialists. Specialists must renew certification within 6 months following termination of their years of active certification. The mailing list in its entirety served as the sampling frame for the study.

Sampling frame and sample size.—The population for the study consisted of the universe of Certified Clinical Nurse Specialists as identified by the ANA, the certifying agency. Of 3,749 specialists, 3,366 were identified as being certified as specialists in adult psychiatric nursing, and 383 as child specialists. Because of the small total number of child specialists, a stratified random sampling procedure was completed using type of specialist as the stratifying variable. This ensured that an adequate subsample of child specialists would be included in the survey. A 25-percent proportional stratified random sample of specialists was chosen from two strata. Stratum 1 included 96 child specialists; Stratum 2 included 842 adult specialists. A random sample was chosen from the separate mailing lists of each group of specialists provided by the ANA.

Sample design.—This survey used a one-stage stratified probability design. All certified psychiatric clinical nurse specialists were included in the universe. Twenty-five percent were chosen from Stratum 1 (child specialists) and 25 percent were chosen from Stratum 2 (adult specialists).

Data collection and instrument.—The specialists were sent a 9-page form that requested information on demographic characteristics, practice patterns, career plans, and perspectives on current issues affecting psychiatric nursing. Questions were developed to be consistent with data being collected by other organizations for use in this publication, particularly the National Sample Survey of Registered Nurses and the ANA's 1986 publication, *Psychiatric and Mental Health Clinical Nurse Specialists: Distribution and Utilization Survey*. This survey, its findings, and its recommendations influenced the development of the tool. The tool was not used in a pilot study prior to its use in this study.

Data were collected from March 1989 until September 1989. While several questions gathered data on work activities for a particular timeframe, the tool did not generally seek to collect information in relation to a specific timeframe. A first mailing was conducted in March 1989 followed by a second mailing in April 1989. A telephone

followup was conducted in June 1989. A final mailing was distributed in August-September 1989 requesting information on the activities of the specialist during March 1989. The telephone followup and the final mailing sought information on only core questions. These questions were identified as those that were to be discussed within the core tables of chapter 4 for all mental health disciplines. Regional and State distributions of specialists were determined from the population of all specialists, as identified in a State-by-State distribution of specialists certified as of October 1989.

Limitations of design and biases.—Three members of the sampling frame did not meet the criteria for inclusion in the sample. One person was reportedly deceased, and two others were not currently certified. Seventeen others were deleted from the sample for the following reasons. Fourteen specialists were currently not working and were not available for work. They included 4 people who were retired and 10 people who indicated no desire to return to work. In addition, one specialist was selected as a member of both strata due to dual certification; her responses were included once within Stratum 1's sample. Two other subjects were living abroad and thus were deleted from the sample. These 20 observations were deleted from the sample, resulting in a Stratum 1 size of 94 and a Stratum 2 size of 824; correspondingly, the baseline number of the population of specialists was reduced by 4 for each specialist deleted in the sample size, resulting in a base population estimate of 375 child specialists and 3,294 adult specialists (total population 3,669). Twenty-six of the respondents maintained in the sample indicated that they were not currently employed, but they gave an indication that they were willing to work within the right set of circumstances. These subjects were maintained in the sample. Many respondents did not consider themselves to be currently fulfilling a role in psychiatric nursing, but identified with either the discipline of one of their academic degrees other than nursing, namely, psychology or social work, or with the role they were occupying, that is, therapist or quality assurance. The questionnaire did not permit an accurate identification of those who maintained a nursing identity within various job positions or those who were employed in positions unquestionably outside the field of nursing. The researchers believe that the estimates here of available psychiatric clinical nurse specialists may be higher than those who actually identify themselves as psychiatric clinical specialists.

Several members of the sampling frame initially reported that the survey was not applicable to them in their current positions—these people were working in administration or private practice and also in a clinical position. Based on the initial response of these subjects, it can be speculated that the nonresponders may overrepresent

those working in administrative positions, in generic mental health roles where the nursing identity is not maintained, or in private practice. A criticism of the survey is that it focused too much attention to the inpatient setting and not enough on private practice settings, which might have influenced private practitioners to choose not to respond. The researchers feel that if there is an overrepresentation of these specialists among the nonresponders, this would be a limitation only for the total questionnaire items. The response rate on the core items, 87 percent for Stratum 1 and 85 percent for Stratum 2, is believed to be high enough to overcome these potential biases.

Estimation.—The following weighting procedures were employed to derive population estimates. Because the sample represents one-fourth of the population, all respondent observations were weighted by four in the estimation of the population. In addition, it was necessary to weight for nonresponse. Operationally, the number in each stratum's population was divided by the number of respondents for each stratum. Stratum 1 weight = $(375/82) = 4.57$; Stratum 2 weight = $(3,294/701) = 4.70$. These weights were then used to determine population estimates for the core items. Missing values on most core items were less than 5 percent. Therefore, the findings are not felt to be biased by missing values. Relative standard errors computed for the joint samples on several core variables ranged from 0.7 percent for percent female to 17.3 percent for percent male. Most estimates had relative standard errors of about 9 percent.

National Sample Survey of Registered Nurses

Scope of survey.—The study represents all those with current licenses to practice as registered nurses (RN) in the country. Thus, it collects data on the personal and professional characteristics of those who are eligible to practice as registered nurses in the country. The data for the study are collected through mail questionnaires. Personal characteristics covered in the survey include gender, age, marital status, presence of children, family income, and geographic location of residence. The professional characteristics covered include educational background, employment status, employment setting, position type, hours of work, salary, and geographic location of employment. The data for the latest study in the series were collected as of March 1988. The summary included in chapter 4 relates to the information obtained on those registered nurses who are employed in nursing and have graduate degrees at the master's or higher level with a primary focus on psychiatric nursing.

Sample design.—The design of the study takes into account the lack of a single listing of all individuals who have licenses to practice in the United States and the fact that nurses may be licensed in more than one State.

The sample was selected from a universe of possible RN names developed from the respective lists of those with current licenses to practice in each State and the District of Columbia. The sampling frame was an alphabetically ordered list of names. This list was partitioned into alphabetic segments, or alpha-segments, of nearly equal size (i.e., equal number of names).

Each of the 51 State Boards of Nursing provided one or more files that contained the names of currently licensed RNs. The files provided by a State formed the basis of the sampling frame from which the sample of RNs for that State was selected. Thus, RNs were selected for inclusion in the sample with equal probabilities of selection within States, on the basis of name. Whether an RN fell into the sample depended on whether her/his name fell within one of the alphabetic segments or portions of alpha-segments that are selected for the sample.

Because State-level estimates were desired, different sampling rates were set for the States based on considerations of the statistical precision of the estimates and the costs involved. States in which smaller numbers of RNs were currently licensed were assigned higher sampling rates than were larger States to yield a sample large enough to provide State estimates of reasonable precision. The use of differential State sampling rates substantially reduced variations in State sample sizes and thus permitted more precise State-level estimation.

The fact that some RNs maintain active licenses to practice in more than one State complicates how selection probabilities are determined. RNs are represented on the licensure file of each State in which they have an active license at the time the sample is selected. The procedure used to identify and account for such multiple licenses involves a scheme in which the alpha-segment portions associated with larger States are "nested" within those associated with smaller States. Under this scheme, an RN who is licensed under the same name in two States that are sampled at the same rate is selected (or not selected) for both States, due to the fact that the alpha-segments and portions of alpha-segments that define sample membership are identical for both States. For two States that are sampled at different rates, the alpha-segment portions for the lower sampling rate (the larger State) are completely included, or nested, within those of the higher sampling rate.

RNs in the sample who had more than one active license were selected more than once. Steps were taken, in accordance with the sample design, to ensure that each sampled RN was retained in the national sample exactly once and assigned, for weighting purposes, to the highest priority

State on whose sample frame the RN appeared. Specifically, after all State samples were selected, they were combined on computer into a single national sample file. This file, referred to as the master file, was sorted by last name, ZIP code, and first name. A complete listing of the file was printed out and reviewed visually. Special attention was paid to all groups of names that sorted together. Two names were taken to represent the same individual if entire names appeared to be the same and addresses were the same. Allowances were made for obvious unimportant differences between representations of the same name and/or address. When there was any doubt, both names were retained in the sample, and questionnaires were mailed to both addresses, and an additional unduplicating process was undertaken when questionnaire responses demonstrated duplication.

Statistical techniques.—The probability sample design for the national sample survey of registered nurses permits the computation of unbiased estimates of characteristics of the target population. These estimates are based on weights that reflect the complex design and compensate, to the extent feasible, for the potentially biasing effect of nonresponse. Nurses were uniquely linked on the national sampling frame with their priority State, that is, the State with the lowest number of currently licensed RNs in which they were licensed. All nurses with licenses in the same priority State had an equal probability of being selected within that State and, consequently, all sampled nurses from that State had equal weights. Weights were assigned to each nurse sequentially. Thus, all nurses licensed in the highest priority State were assigned weights first. For the next highest State, and subsequent States in order, those who had already received weights as a result of being licensed in a higher priority State retained that weight, and the sum of those so weighted was subtracted from the total number of licenses in the State under consideration before the State's weight was calculated.

To the extent that samples are sufficiently large, relatively precise estimates of characteristics of the licensed RN population of the United States can be made because of the underlying probability structure of the sample data. Such estimates are, sometimes, an imperfect approximation of the truth. Several sources of error could cause sample estimates to differ from the corresponding true population value. These sources of error are commonly classified into two major categories: sampling errors and nonsampling errors.

A probability sample such as the one used in this study is designed so that estimates of the magnitude of the sampling error can be computed from the sample data. Nonsystematic components of nonsampling error will also be reflected in the sampling error estimates.

Systematic sampling, which was the selection procedure used in choosing the alpha-segments for this study, is very convenient from certain practical points of view. However, it does not permit unbiased estimation of the variability of survey estimates unless some assumptions are made. Estimates of sampling errors in this study were made based upon the assumption that the systematic sample of alpha-segments is equivalent to selecting a stratified random sample of two alpha-segments from each of the strata of adjacent alpha-segments. Based on the number of alpha-segments included in the sample, estimates of variances were obtained using the jackknife variance estimation procedure with 20 replicates. Each replicate is based on the use of 19 pairs of alpha-segments and one alpha-segment from the 20th pair (there are 20 alpha-segments altogether).

Data collection methodology.—To ensure an adequate response to the survey, there were a number of mailouts followed by a telephone call to nonrespondents to the mailouts. Particular efforts were made to obtain correct addresses for those questionnaires returned because the nurse could not be located at the address given. In March 1988, after elimination of duplicates in the sample, 42,371 questionnaires were mailed. A total of 33,196 completed questionnaires were received. After taking account of ineligible and those questionnaires returned because the nurse was deceased or too disabled to respond, the overall response rate to the study was 80.7 percent.

Nurses with master's degrees with a primary focus of psychiatric nursing are a relatively small segment of the total registered nurse population. Based on the estimates in this survey, only 13,498 of the 2,033,032 registered nurses in the country in March 1988 had the requisite qualifications. A total of 10,567 of the 13,498 were employed in nursing positions. Thus, only 211 out of the 33,047 sample cases upon which the summary data in the overall study are based provided the data for information included in chapter 4. There were 164 sample cases of nurses with the appropriate qualifications who were actively employed in nursing positions. While it can be assumed that these cases represent a probability sample of the appropriate universe, the size of this sample needs to be kept in mind as the data are reviewed. Based on the variances computed for data in the study, it might be assumed that the standard error of the number of employed psychiatric nurses is about 10 percent of that number.

FOOTNOTES

¹The data on licensure were obtained for all members, using the most recent lists compiled by all State licensing boards.

²In the survey, health and mental health services were defined as "assessment and intervention procedures used for understanding, predicting, or alleviating emotional, psychological, and behavioral disability and discomfort, including such activities as

diagnostic assessment, psychotherapy, consultation, and clinical supervision." A separate category for the types of services traditionally provided by school psychologists (i.e., "assessment and intervention procedures used for understanding, documenting, or modifying intellectual capabilities and psychological/behavioral functioning so as to influence academic and/or vocational performance, including services provided to children, students, parents, teachers, etc.") also was a response option. However, involvement in these latter activities did not qualify an individual as a health service provider in psychology.

³Appropriate major fields were behavioral medicine, clinical psychology, clinical neuropsychology, community psychology, correctional psychology, counseling psychology, forensic psychology, health psychology, medical psychology, pastoral psychology, pediatric psychology, professional psychology, psychoanalysis, psychopathology, psychotherapy, and rehabilitation psychology.

⁴This group includes, for example, faculty in clinical psychology programs for whom licensure is required in order to supervise

clinical practica of their students but who are solely engaged in research and teaching.

⁵This group includes psychologists who have completed the necessary training but who work in settings where licensure is not required (e.g., psychologists working in some military organizations and faculty) and those individuals who have completed their formal training and are accumulating the postdoctoral experience required before the licensing examination can be taken. If desired, however, these individuals are eligible to sit for the licensing exam and could become part of the active provider pool within a relatively short time.

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