PART II

Methods of Assessing Mental and Physical Health Needs From Social Statistics

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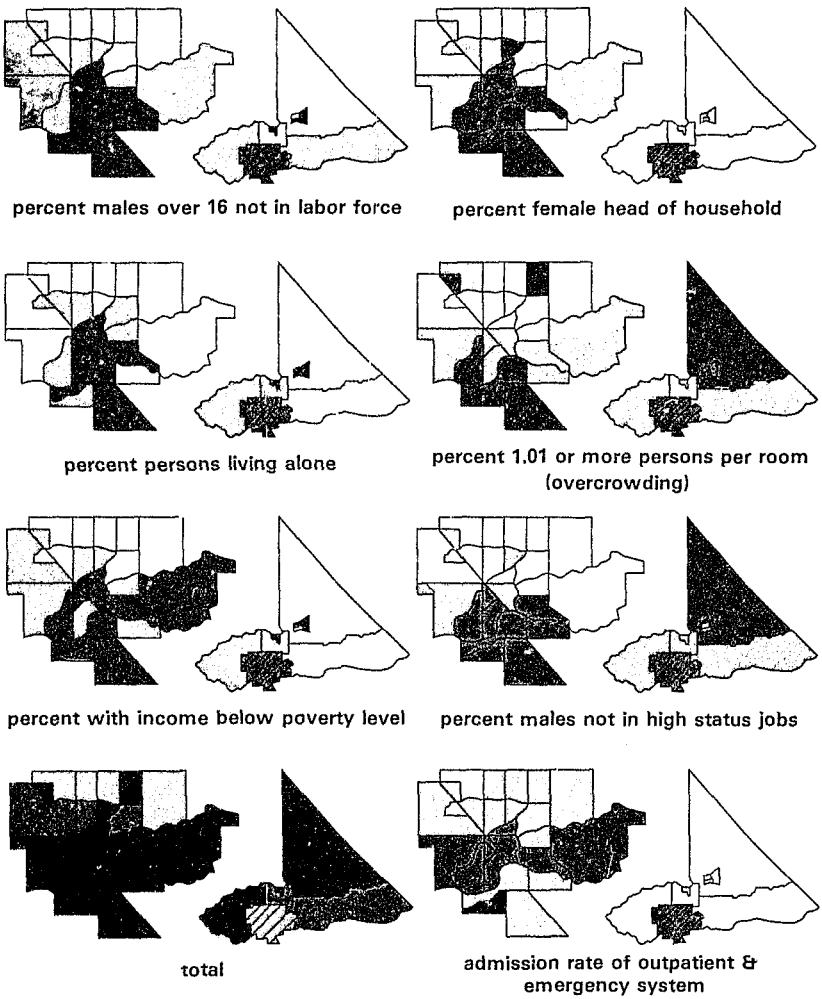
This article presents three methods of assessing needs from social statistics and attempts to point out the strengths and weaknesses of each method. These methods have proved valuable for a small community mental health center in Modesto, California.

METHOD 1: VISUALLY IDENTIFYING NEEDS

The method for visually identifying needs was developed by Ian McHarg as an urban planning tool and is excellently presented in *Design with Nature* (1969). Using this method, one first identifies factors related to the problem area one is looking at. For example, it is possible to look at "percent of families with female head of household," and "rate of admission to a mental health center" as indicators of need for mental health services. Maps are then developed for these variables with different densities of gray representing different levels (percentages or rates) of each factor in each geographic area. These maps are then transferred onto transparent plastic sheets and superimposed on one another. The result is one overlay that represents the sum of all factors associated with mental illness. An example of this process is shown in Figure 1. Similar maps can be made for health, education, and other "quality of life" concepts.

FIGURE 1

Visually Assessing Needs



Variables assumed to be related to need are put on transparent plastic sheets with varying intensities of gray representing increasing percentages or rates. Dark areas are assumed to be high in need. The sum of all variables can be seen in an overlay of all maps (Total). This map can then be compared with resources such as admission into the system. The "Total" map in this picture was comprised of six variables that together correlate .89 with admission into the system. (Maps of different geographic areas, such as police beats and health districts, can also be used.)

The maps are from catchment area 55 in Stanislaus County, California. The hatched portion in the center of the right map is enlarged in the left map.

Results

Through the visual process, areas of high and low risk in the community can be identified. The dark areas in Figure 1 are assumed to be the areas of high risk of mental illness. With this knowledge of high-risk areas, it is possible for a planner to compare utilization rates (such as admission into a mental health system) with areas of high risk to determine whether or not a program is reaching its target population. For example, in Stanislaus County it was discovered that the outlying rural areas all have low rates of entry into the system, except for one area with an outreach clinic. The assumption, based on census statistics, was that outlying areas were not low-risk regions, but should, in fact, have at least a medium rate of entry into the mental health system. This assumption led to a proposal to develop more outreach programs. The visual process also gives demographic information concerning the nature of the different communities that make up the area of geographic responsibility. Incidentally, these maps could be computer-generated from beginning to end, and NIMH could perhaps develop programs to provide this information to each catchment area.

Problems

The method just described has two main problems. The first is the assumption that social statistics such as "percent of unemployed males" are related in some way to need (or risk of mental illness, in this case). Such an assumption is not valid, because of the lack of consensus in defining mental health and the measurable predictors of it. Nevertheless, there are several reasons why social statistics can be used. First, there is a high degree of face validity to quality-of-life measures. One can assume that areas of high unemployment are areas of high social stress, which is related to risk of mental illness. Second, there are examples of research that show significant correlations between social statistics and hospitalization for mental illness. Third, most public programs, such as the mental health program in Stanislaus County, are geared to reach those who can't afford private care. The social statistics used to predict needs are related to economic indicators and can be thought of as indicating where the individuals are likely to live who don't have the choice of using private resources in the community. Finally, the method looks at relative levels of factors within a community during one period of time rather than changes over time, which is more difficult. For example, when looking at different levels of stress within a community, it is fairly easy to obtain agreement on the assumption that an area with a low crime rate is a more comfortable place to live than an area with a high crime rate. It is more difficult to get agreement that a certain area in town is more or less comfortable to live in than it was five years ago.

The second major problem with this method of assessing need, assuming social variables predict mental health needs, is deciding how to choose the variables that most accurately predict needs. In Stanislaus County the method used was a combination of intuition and help from other studies. Redick, *et al.*, (1970) reviewed the literature and described several independent factors that appear to exist within a community. Bloom (1968) and Struening, *et al.*,

(1970) have correlated census statistics with hospital admissions. In Stanislaus County, the first step was to gather as many variables as could be easily tabulated, including the admission rate into the emergency and outpatient system. Admission maps were developed as described above and were compared visually with census data maps to find variables in the county that appeared to be related to admission into the system. This local information, plus the other studies, led to the choice of variables selected as predictors of mental health needs. A list of these is found in Table 1.

METHOD 2: IDENTIFYING THE RELATIVE AMOUNT OF NEED IN EACH CENSUS TRACT

The second method for identifying needs assumes that social statistics are accurate predictors of level-of-need, and assigns to each census tract a per-

TABLE 1

Variables Assumed to be Related to Mental Health Needs

Demographic characteristics

% minority population
% under 18 and over 65

Family characteristics

% families with female head of household
% housing units occupied by one person (isolation)
% housing units occupied by more than one person per room (overcrowding)

Economic characteristics

% families with below poverty level
% males over 16 not in labor force
% non-owner occupied housing
% males not in professional, technical, and kindred occupations

Social disruption

Adult Probation Cases
Juvenile Probation Cases
Suicide rate
Cases of cirrhosis of the liver (alcoholism)
Entry into the mental health system

cent of the total needs of the area of geographic responsibility. This method takes into account the fact that the strongest indicator of need is the number of persons who live in each tract. In a sense, this method takes the level of need of each census tract identified by the previous method and multiplies the level of need by the number of persons in the tract. This method is modified from one used by the Bureau of Biostatistics of the California Department of Health.

In using this method, one uses absolute numbers (such as the number of persons on welfare and the number of unemployed persons). In the example in Table 2, the number of persons below proverty level, the number of probation cases, and the number of families with a female head of household are used as indicators of economic, social, and family disruption, all of which are assumed to be related to a need for mental health resources. These numbers are then converted into percentages. For example, Census Tract 1 has 20 percent of the poverty population, 13 percent of the probation cases, and 17 percent of the families with a female head of household. This is an average of 17 percent of all variables chosen as predictors of mental health needs. Census 1 is then said to have 17 percent of the needs and should get 17 percent of the resources for the geographic area.

Problems

This method suffers from the same problems as the previous method. Are the factors looked at actually predictive of mental health needs? Are small-area statistics, such as census data, accurate over a period of several years? Furthermore, does the method accurately reflect whatever applicable information there is in such statistics? Acknowledging these problems, there are certain supporting arguments that convince us that the method provides a more accurate reflection of need than a per capita assessment. First, small area statistics tend to be relatively stable; a middle-class area doesn't turn into

TABLE 2
Proportioning Out Needs

Census	Persons below poverty level		Probation cases		Families with female head of household		Average
	Number	Percent	Number	Percent	Number	Percent	Percent
1	2000	20	100	13	550	17	17
2	4000	40	350	45	1500	48	44
3	3500	35	300	39	1000	32	35
4	500	5	20	3	100	3	4

*Data in this section are taken in part from papers by Bortman, et al., (1971), Harris et al., (1971), and Roseman (1971).

a slum rapidly, even though individuals may have a high turnover rate. Second, as was stated earlier, the variables are assumed to be related to need because of the high face validity, because of significant correlation between these social statistics and mental health utilization, and because of public programs' emphasis on serving those who don't have the choice to be seen elsewhere. Finally, the number of cases in each tract are in proportion to the number of persons in the tract, and the overall result is similar to a per capita count. However, tracts with a high proportion of poverty cases, for example, will have a heavier representation.

METHOD 3: IDENTIFYING NEEDS IN ABSOLUTE NUMBERS*

It may be desirable to identify the absolute number of persons suffering from a specific disorder. For example, how many persons are suffering from acute and chronic psychiatric disorders? How many alcoholics are there? In this case one has to gather as much data as possible, fill the gaps with surveys deemed necessary, and make an educated guess. The following examples each use social statistics differently. Example A uses already available statistics; Example B shows the use of surveys supplemental to available statistics; Example C shows a case in which an estimate is made from prior research; D is an example of guessing.

Example A

To identify the number of persons suffering from family distress in Stanislaus County, the following already available statistics were gathered: number of patients on public and private mental health caseloads; estimated number of alcoholics; estimated number of drug abusers; estimated number of persons with severe mental retardation; estimated number of persons with senility; number of persons in process of divorce in the previous year; number of persons processed through juvenile court system. Adding up these numbers and multiplying by two (reflecting the involvement of one significant other) gave a rough estimate of the total number of persons affected by family distress. In Stanislaus County, using this method, 24,500 persons out of a population of 200,000 were thought to be suffering from family distress.

Example B

In some cases more information and investigation is needed. In Stanislaus County, the number of alcoholics was estimated at 1,200 by the Jellinek formula, which assumes that 35 percent of all deaths from cirrohosis of the liver in a given year occur among chronic alcoholics and that the annual death rate among chronic alcoholics is 0.65 percent. At the same time, it was estimated that California had a million alcoholics, which suggested that Stanislaus County had 10,000 alcoholics. Further research was necessary to resolve the conflicting estimates.

*Data in this section are taken in part from papers by Bortman *et al.* (1971), Harris *et al.* (1971), and Roseman (1971).

The additional research revealed over 450 arrests per month for alcohol-related crimes, an estimate of 700 alcoholics among the welfare department's case loads, and the probation department's estimate of 75 cases of alcoholics a month. In addition, a survey of local doctors in the medical society showed 1,400 patient contacts a month with alcoholics, and a survey of major employers in the county showed alcoholism as a serious factor in business. Taking these factors into account, the Jellinek formula was considered too conservative, and an estimate of 6,000 to 10,000 alcoholics in the county was decided upon.

Example C

In some cases there are no available statistics and one has to use other surveys to estimate the number of people involved. Such was the case with the number of acute and chronic psychiatric disorders in the county. There is no knowledge of how many of the persons appearing at other agencies are suffering from psychiatric disorders, and no way of getting any information. Consequently, the best estimate of psychiatric disorders was believed to be taken from epidemiological surveys, such as the Manhattan Report (Srole, 1962). However, these reports are not necessarily applicable to all geographic locations. For example, rural areas have long been noted to have lower rates of identified psychopathology than urban areas. Taking these factors into account, it was estimated that five percent of the population at large in Stanislaus County suffered from acute and chronic psychiatric disorders.

Example D

In some cases, there are no available statistics or useful surveys, and an educated guess is all that is possible. An educated guess was made for the number of drug abusers in the county, because drug abuse is a phenomenon for which no hard data is available. There are some statistics concerning arrests and hospital admissions, and one can use such statistics to get a general idea of the amount of drug abuse. But the only estimate of overall drug abuse, especially of the less serious drugs, is the opinion of line workers in organizations such as the local drug abuse coordinating council, the police and probation departments, the school system, and local crisis centers. These opinions may not be inaccurate: a survey of all junior high and high school students in the major metropolitan area of the county showed that estimates of the amount and nature of drug use made by school and other authorities was close to the actual amount showed by self-reports.

SUMMARY

A traditionally difficult task for planners of human service programs has been that of assessing needs before a program is developed. Needs assessment is made more difficult by the lack of useful statistics, for often the only figures available are large-scale social statistics, such as the census. This paper has presented three methods of assessing needs from social statistics, each of which involves gathering as many statistics as are available and estimating

from them the total number of persons in need. These methods provide a way of detecting areas of high and low risk and of proportionally allocating resources in a more equitable way than on a per-capita basis.

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