

The Realities of Geographic Space in Rural Mental Health Programing

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ACCORDING to the 1960 census, approximately 30 percent of the U.S. population, or 60 million Americans, reside in rural areas (1). A regional breakdown, using gross population density per square mile, indicates that the West was the most rural area in the United States (table 1). The West had an average of 16 inhabitants per square mile as compared to 273 residents per square mile in the East and 68 and 62 in the Central and Southern States.

Problems in the West related to the vast geographic areas with sparse population have long been a source of concern to sociologists, economists, and agriculturalists (2-4). If the community mental health movement is to become a truly national program, then mental health professionals must come to grips with such realities.

Radii of circles to encompass populations of 50,000, 75,000, and 200,000 inhabitants in each of the four regions have been computed based on average population density (table 1). In the East a radius of 9.4 miles will, on the average, include a population of 75,000 residents while a circle with a radius of 27 miles will

typically encompass 200,000 inhabitants. To further aid in visualizing population as a function of area and population density, diameters and circumferences of such theoretical circles have been calculated.

In the 13 States of the West, including California which was the second most populous State in 1960, an average circle with a radius of 31.5 miles would be required to circumscribe a population of 50,000 inhabitants; for 200,000 persons, a circle with a radius of 62.4 miles would be needed. In distance this would be similar to a locus placed in Baltimore, Md., with a 62.4-mile radius including Lancaster, Pa., to the north, the entire District of Columbia, and 20 miles of northern Virginia to the south.

To supplement the regional comparisons of gross population density, a breakdown of the West by State, shown in table 2, has been calculated from the 1965 population projections (5). Since the focus of this paper is on rural areas, estimated rural population density per square mile has been developed for each of the 13 Western States. This estimated rural population density, containing all residents living outside urban areas of more than 35,000 persons, provides a base for again estimating radii of circles to encompass certain populations.

To estimate rural population density, total State population minus population of communities of more than 35,000 persons was divided by 95 percent of the total State land area. This 5

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percent correction is based on a 1960 census national estimate that 70 percent of the U.S. population resided in 1 percent of the total land area. Since urban areas in the West cover more area than urban areas elsewhere, 5 percent of the total State land area has been deducted to obtain a more accurate estimate of rural population density. The weakness of this statistic is that it also includes fringe urban areas outside of cities and communities of more than 35,000 population, thereby raising the density ratio as compared to 1960 rural census.

With the exception of California, Hawaii, and Washington, the remaining 10 States have rural population densities ranging from 0.4 to

15.1 persons per square mile, with a majority of the total State populations residing outside urban areas. Average radii of circles necessary to include populations of 50,000, 75,000, and 200,000 are given for each of the Western States in table 2.

New Program Developments

The Community Mental Health Centers Act of 1963, Public Law 88-164, which authorizes Federal matching funds for the construction of community mental health centers, provides a national model for the mental health center of the future (6). Five essential services—inpatient, outpatient, partial hospitalization,

Table 1. Population density and geographic area necessary to encompass populations of 50,000, 75,000, and 200,000 residents, United States, 1960¹

Area	Population per square mile	Radius in miles to encompass populations of—			Diameter in miles to encompass populations of—			Circumference in miles to encompass populations of—		
		50,000	75,000	200,000	50,000	75,000	200,000	50,000	75,000	200,000
East.....	273.1	7.6	9.4	27.0	15.2	18.8	54.0	47.7	59.0	169.6
Central.....	68.4	15.2	18.7	30.5	30.4	37.4	61.0	95.5	117.4	191.5
South.....	62.7	15.9	19.5	31.9	31.8	39.0	63.8	99.9	122.5	200.3
West.....	16.0	31.5	38.2	62.4	63.0	76.4	124.8	197.8	239.9	391.9

¹ Tables I-XX, reference 1.

Table 2. Rural population density estimates and geographic areas necessary to encompass populations of 50,000, 75,000, and 200,000 residents, Western United States, 1965

States	Total land (square miles)	State population ¹	Population of communities over 35,000 ¹	Estimated rural population density per square mile	Radii in nearest miles to include populations of—		
					50,000	75,000	200,000
Montana.....	145,736	717,000	122,500	4.3	61	75	122
Idaho.....	82,708	702,000	135,000	7.2	47	56	94
Wyoming.....	97,411	355,000	92,500	2.8	75	92	166
Nevada.....	109,788	426,000	178,000	2.4	81	100	163
Utah.....	82,339	1,008,000	409,000	7.7	46	56	91
Colorado.....	103,884	2,003,000	941,800	9.8	40	49	80
Arizona.....	113,575	1,635,000	903,000	6.8	48	60	97
New Mexico.....	121,510	1,048,000	332,000	6.2	51	62	106
Washington.....	66,709	3,051,000	1,030,900	31.9	22	27	45
Oregon.....	96,248	1,896,000	513,500	15.1	33	39	65
California.....	156,573	18,338,000	5,835,700	84.1	4	17	28
Alaska.....	571,065	247,000	49,000	.4	199	244	399
Hawaii.....	6,415	710,000	315,000	64.8	16	19	31
Mean.....				18.73	55.6	68.9	114.4

¹ Reference 5.

emergency, and consultation and education—are included to provide quality care to patients, insuring a free flow of patients from one service element to another as the patients' treatment needs demand. The regulations also state “. . . that every community mental health facility shall serve a population of not less than 75,000 and not more than 200,000 persons, except that the Surgeon General may, in particular cases, permit modification of this population range if he finds that such modifications will not impair the effectiveness of the services to be provided” (6).

The Rural Dilemma

In keeping with regulations of the act, a comprehensive community mental health center to serve a rural area in Colorado would have to serve an area with a radius between 49 and 80 miles. In Wyoming a rural mental health center would have to serve an area with a radius between 92 and 166 miles.

With such vast space and sparse populations in the rural West, the following questions can be posed.

1. Based on the realities of space, the concomitant problems of limited professional personnel, and the necessary financial base required, does the model of the comprehensive community mental health center fit the rural areas of the West?

2. If the answer to question 1 is “yes,” how and by what means can this model be developed? How can continuity of care and quality of care be incorporated? Can financing at the State or local level, or both, be developed to support such centers serving large multiple county or interstate areas?

3. If the answer to question 1 is “no,” what alternative models for community mental health

services could be substituted for the comprehensive community mental health center?

A search of the literature reveals few attempts to study the relation of geographic proximity to the utilization of mental health services. One report based on findings in southern rural Minnesota (population density 47.2 persons per square mile) as to utilization of outpatient psychiatric services concludes (7) :

The distance patients must travel to obtain service appears to be a significant factor in the use of outpatient psychiatric care. Forty to 60 miles, the range equivalent of 1 hour's drive by car, seems to be the practical limit in rural areas. At greater distances, proper utilization of facilities is impeded, and the type of referral is adversely affected by the tendency to postpone or forego treatment of less than severe disorders. . . . When community services as distinguished from clinical services—for example, consultation to agencies, provision of inservice training programs, and education of the public—are to be major aspects of a program, distance and location become even more important considerations in planning.

REFERENCES

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