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Original Article

Availability of Outpatient Substance Use Disorder Treatment Programs in the United States

BRIAN E. PERRON,[1] DAVID F. GILLESPIE,[2]
BEN ALEXANDER-EITZMAN[3] AND JORGE DELVA[1]

[1]School of Social Work, University of Michigan, Ann Arbor, Michigan, USA
[2]Brown School of Social Work, Washington University, St. Louis, Missouri, USA
[3]Appalachian State University, Boone, North Carolina, USA

The purpose of this study was to examine the availability of outpatient substance use disorder (SUD) treatment programs in the United States. A geographic information system (GIS) was used to spatially locate outpatient SUD treatment programs, calculate areas, and determine population density within specific areas. Urban areas were mapped using data from the US Census (2000). Addresses of outpatient SUD treatment programs were obtained from the Facility Locator Web site of the Substance Abuse and Mental Health Services Administration. A 15-mile service catchment around each outpatient SUD treatment program was drawn. The amount of urban area not covered by the service catchment represents the underserved. Total underserved urban area and population without access was computed for each state. Significant variability of underserved urban area and population was observed across the states. Moderate correlations among area and population suggest that some states are more effective in locating SUD treatment programs than other states.

Keywords service availability; substance use disorder treatment; geographic information systems; GIS

Treatment for substance use disorders (SUD) can be effective (Miller and Wilbourne, 2002; Prendergast, Podus, Chang, and Urada, 2002). The evidence supporting effective outpatient treatment has grown over the past decade, yet there remain significant gaps in both dissemination (Miller, Sorensen, Selzer, and Brigham, 2006) and access (Epstein, 2002) to SUD treatment. The need for treatment varies by geographic region, with southern and southwestern states showing the highest gap between need and treatment received (McAuliffe and Dunn, 2004). One common-sense approach to addressing these regional gaps is to maximize the availability and accessibility of SUD treatment programs to densely populated areas, which also generally have the highest measured need for

The authors would like to acknowledge Chris Wayne for his technical assistance for this study.
Address correspondence to Brian E. Perron, School of Social Work, University of Michigan, Ann Arbor, MI 48103. E-mail: beperron@umich.edu.

treatment (Epstein, 2002). Conger (1997) has demonstrated some of the differences between urban and rural substance abuse and points out some of the difficulties in defining exactly what the terms urban and rural mean, particularly in relation to substance abuse and service access. He argues for defining urbanicity along a continuum, rather than as a dichotomy.

Previous studies of service access and substance use in rural or urban areas reflect this ambiguity of definition. For example, Warner and Leukefeld's study of substance use and treatment utilization of pre-incarceration living location in a prison population (2001) used three categories of population size: Urban (over 50,000), Rural (2,500 to 50,000), and Very Rural (below 2,500). In a study of problem drinking in rural and urban areas, Jackson, Doescher, and Hart base their categories of urbanicity on the US Department of Agriculture's Urban Influence Code (UIC), which defines counties as Metropolitan, Adjacent Nonmetro, Remote Micropolitan, and Remote Noncore (2006). The US Census has more recently added a category of urban clusters (adjacent small towns that have combined populations over 2,500) to their set of definitions, incorporating a wider net of nonrural metro areas.

These definitions are important in understanding how we address the problem of measuring accessibility to SUD services across the nation. Recent demographic shifts in poor populations from city core areas to surrounding less urbanized areas (defined as suburban) will impact the need for health (and substance abuse) services in many of these areas that are outside the city core (Kuehn, 2007). Using broader definitions of urbanicity by including urban cluster areas, many of which are far from large cities, is now possible using the Census 2000 designations.

Reduced travel times to outpatient treatment settings can significantly improve rates for the use of both mental health and SUD services. Two studies using samples of Veteran's Administration patients found that recently discharged inpatients had higher rates of aftercare the closer they were to the outpatient setting (Fortney, Booth, Blow, Bunn, and Cook, 1995; Schmitt, Phibbs, and Piette, 2003). While the patterns of service use in these cases are complex, travel barriers have significant and important impacts on SUD service use. Improving availability and accessibility of treatment programs has been recognized for a long time as an important priority (Gillespie and Martin, 1978). Regional variation in the availability of SUD programs remains poorly understood. This gap in knowledge makes it difficult to plan targeted strategies for improvement.

The traditional measure of availability focuses on the number of providers or programs within a specific geographic region (e.g., county). Fortney, Rost, and Warren (2000) review two significant challenges to this measure. The first is the issue of *boundary-crossing*. That is, persons living near a particular geographic boundary may receive services outside the boundary. Kleinman and Makuc (1983) reported 45.1% of rural subjects in the National Health Interview Survey crossed the county border for health services (as cited in Fortney et al., 2000). The second challenge is the *errors-in-variables* bias. This is the unmeasured geographic variation in access to providers. This variation reflects the geographic distances between clients and service providers and is inflated when using location measures at the county or zip code level. One consequence is that the strength of the relationship between geographic access and service use will bias regression estimates toward zero (Fortney et al., 2000; Geronimus, Bounnd, and Neidert, 1996).

Geographic information systems (GIS) analysis provides a way of mitigating traditional measurement challenges. GIS is a computer system designed to facilitate the collection, management, and analysis of spatially referenced information and associated attribute data. The purpose of this study is to examine the availability of outpatient SUD treatment programs in the United States, with a specific focus on locating underserved population areas. By using GIS, problems of boundary crossing and errors-in-variables are minimized. Specifically, GIS can spatially locate providers at the street level rather than by zip code or county. Then, zones or buffers reflecting reasonable travel distances can be drawn around the service providers to give more accurate estimates of geographic area and populations.

Methods

Sample Frame

A list of outpatient SUD treatment programs was downloaded from the Substance Abuse and Mental Health Services Administration (SAMHSA) facility locator (http://findtreatment.samhsa.gov) on March 3, 2007. The SAMHSA facility locator is a database that provides a list of all private and public facilities that are licensed, certified, or otherwise approved for inclusion by their respective state substance abuse agency. The database includes facilities administered by the Department of Veterans Affairs, Indian Health Services, and the Department of Defense. The 8,257 programs included in this analysis provide outpatient SUD treatment services or a mix of SUD and mental health treatment services. Outpatient treatment was selected because it is the most common modality of SUD treatment.

Mapping Urban Areas

The first step of the study involved mapping urban areas for each state in the United States. An urban area was defined according to the US Census (2000) as a large central place with adjacent densely settled census blocks that have a total population of at least 2,500 for urban clusters or 50,000 for urban areas. In order to calculate area, the map was projected. This is a process of transforming the Earth's surface identified by latitude and longitude into Cartesian coordinates (Longley, Goodchild, Maguire, and Rhind, 2005). There are many different types of map projections. The projection used in this study was the U.S. Contінguous Albers Equal Area Conic for the contiguous states. For Hawaii and Alaska, their respective Albers projection was used. After the map was projected, the total urban area was computed in square miles.

Locating Treatment Programs

Treatment programs were *geocoded,* or spatially located, on the map from their address in the SAMHSA database. Less than 1% of the total programs ($n = 53$) could not be geocoded due to insufficient or incorrect information. Figure 1a graphically depicts a selected urban area with treatment programs geocoded. This figure represents approximately 110 miles squared (i.e., length = 105 miles; width = 110 miles).

Defining Service Catchments

In this study, *service catchments* reflect the geographic area that treatment programs serve. To date, there are no studies that have determined the average or maximum amount of time and distance people travel to receive outpatient SUD treatment. Therefore, this study was guided by related research for defining service catchments.

Fortney et al. (1995) examined the influence of geographic accessibility on attending at least one after-care appointment within 30 days of completing treatment for an alcohol

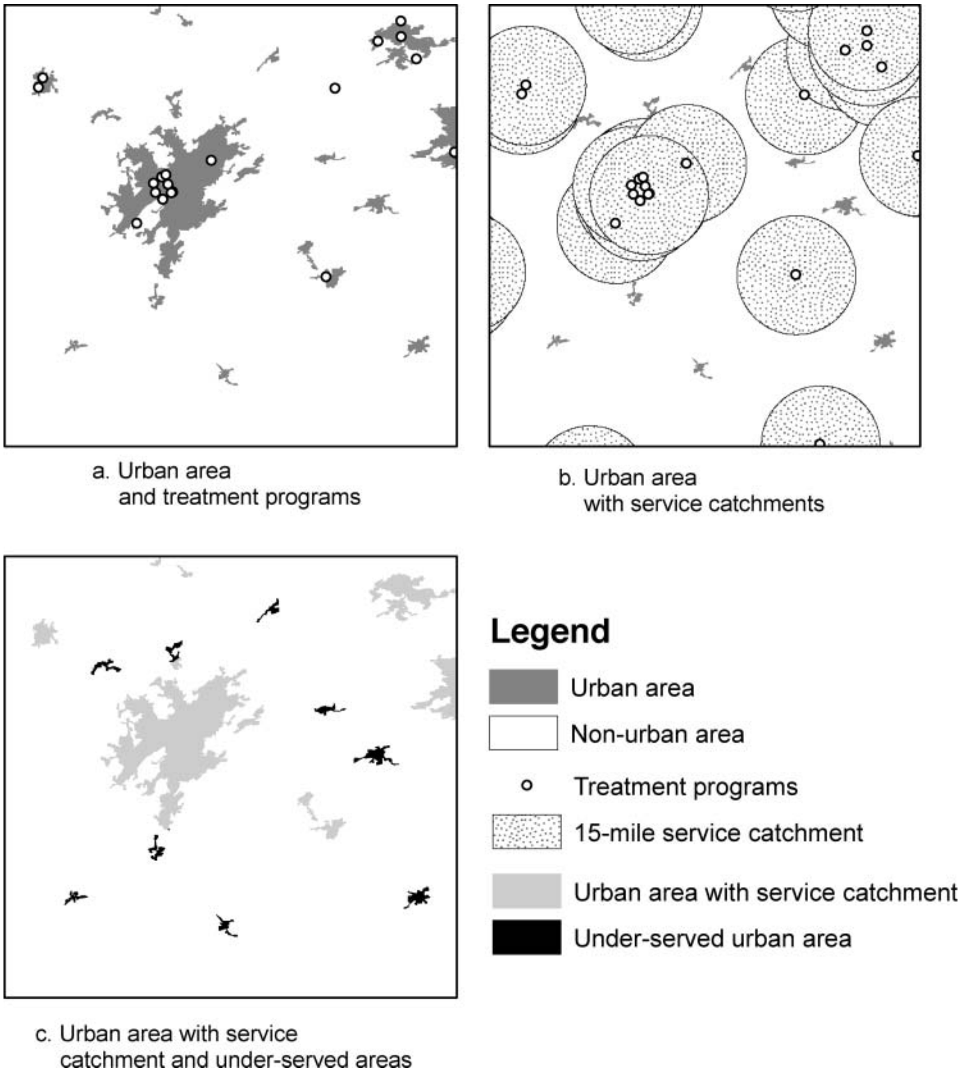

Figure 1. Overview of process for identifying underserved urban areas using geographic information system (GIS).

use disorder. Based on their final multivariate model, they reported that a middle-aged, unmarried patient, without any systemic medical or psychiatric complications, residing in a metropolitan area 15 miles from the medical center had a 64% predicted probability of attendance. In another study, Fortney, Rost, Zhang, and Warren (1999) reported that persons made 3.6 depression-related visits over a period of 6 months, traveling on average 26 minutes for each treatment and that the overall number of visits was inversely related to travel time.

People receiving outpatient treatment for a substance use disorder are typically required to attend multiple times per week. If the treatment accords with the National Institute of Drug Abuse (NIDA) evidence-based principles of treatment, the duration of treatment would be at least 3 months (National Institute of Drug Abuse: NIDA, 1999). Although there is significant variability across treatment programs, the outpatient treatment generally requires multiple visits per week during the initial few weeks. In 2 to 4 weeks following admission, the regularity of sessions may be reduced to one session per week, and eventually to one session per month. Thus, depending on the service needs of the individual, payment source, and program expectations, the number of outpatient sessions may range from 10 to 20 (or even more) more sessions. Thus, even a low dosage of outpatient treatment involves a substantial treatment commitment. For example, 60 hours of treatment commitment would be fairly reasonable for ten sessions. This assumes 30 minutes of travel to the agency, 60 minutes with a treatment professional, and 30 minutes travel back home or to work. Often this time is taken from work to make these appointments. For these reasons, people are unlikely to travel more than 30 minutes one-way for outpatient treatment. It takes 30 minutes traveling at 30 miles per hour to go 15 miles. We assume that 15 miles is a maximum upper bound for attending SUD treatment in an urban area, which most likely over-estimates the maximum travel distance. This 15-mile upper bound provided the basis for identifying population areas that are outside of the service catchments. To locate the service catchments on the map, a 15-mile radius around each program was drawn (see Figure 1b).

Measuring Underserved Areas

Measures of underserved areas were identified by locating the intersection or overlap of urban areas and service catchments on the map (see Figure 1c). A series of metrics were developed based on these intersections. *Absolute underserved area i*s the total urban area in square miles that does not overlap with the service catchments. *Relative underserved area i*s the proportion of underserved in the overall area.

It should be noted that efforts were made to account for differences in population densities across the clusters and areas. Thus, absolute and relative underserved population measures were also computed. Respectively, these were the total population not located in the service catchment areas and the proportion of underserved in the total urban population. These measures were highly correlated with their underserved urban area counterparts ($\rho >$ .96). Thus, they were considered redundant measures and excluded from the analysis.

Results

Table 1 provides a summary of the measures of area and population for all 50 states. Absolute underserved area, measured in square miles, ranged from 0 (Rhode Island and New Jersey) to 850 (Texas), with a mean of 104 (SD = 104.4). Relative underserved area reflects the proportion of the total urban area that is underserved. This measure ranged from 0 (Rhode Island and New Jersey) to .34 (Arkansas), with a mean of .08 (SD = .08). In other words, it is estimated that there is no underserved urban area in Rhode Island and New Jersey, while 34% of the total urban area in Arkansas is underserved. Table 1 presents a list and ranking of the percent of the total urban area that is underserved in each state. In addition, Table 1 shows the estimated change in percentage of the population from 2000 to 2006. These data were derived from the US Census Web site (US Census Bureau, nd). This percentage can be considered a very general reliability indicator for the estimates of underserved areas and populations. More specifically, the greater the change in population, the more likely the estimated underserved area will be biased. The estimated population changes for the entire United States during this time period was 6.39%. The

Table 1
Summary of underserved areas and populations

State	Urban area	Urban area in service catchment	Absolute underserved urban area	Relative underserved urban area	Urban population	Estimated population change from 2000 to 2006 (%)
Alabama	1, 779.4	1, 603.0	176.4	0.099	2, 467, 076	3.42
Alaska	245.1	188.1	57.0	0.233	381, 729	6.88
Arizona	1, 671.1	1, 550.4	120.7	0.072	4, 484, 630	20.19
Arkansas	903.3	595.3	308.0	0.341	1, 373, 075	5.14
California	7, 818.5	7, 442.9	375.6	0.048	31, 308, 398	7.63
Colorado	1, 268.8	1, 262.6	6.2	0.005	3, 615, 346	10.51
Connecticut	1, 760.0	1, 748.1	11.9	0.007	3, 021, 903	2.91
Delaware	302.7	287.8	14.9	0.049	667, 024	8.92
Florida	5, 807.9	5, 598.3	209.6	0.036	13, 158, 219	1.66
Georgia	3, 747.9	3, 383.8	364.1	0.097	5, 780, 374	13.19
Hawaii	322.5	320.5	2.0	0.006	920, 579	14.38
Idaho	407.8	362.0	45.8	0.112	847, 505	6.10
Illinois	3, 589.1	3, 493.5	95.6	0.027	10, 528, 578	13.33
Indiana	2, 230.2	2, 178.5	51.7	0.023	4, 809, 267	3.32
Iowa	820.9	637.9	183.0	0.223	1, 769, 917	3.83
Kansas	863.0	790.3	72.7	0.084	1, 881, 881	1.91
Kentucky	1, 215.4	1, 194.4	21.0	0.017	2, 254, 503	2.81
Louisiana	1, 660.7	1, 512.4	148.3	0.089	3, 215, 122	4.07
Maine	336.5	332.1	4.4	0.013	483, 734	−4.05
Maryland	1, 768.2	1, 765.4	2.8	0.002	4, 554, 723	3.66
Massachusetts	2, 816.8	2, 780.3	36.5	0.013	5, 542, 064	6.03
Michigan	3, 358.6	3, 294.4	64.2	0.019	7, 336, 501	1.39
Minnesota	1, 573.1	1, 516.2	56.9	0.036	3, 476, 548	1.58
Mississippi	921.8	613.8	308.0	0.334	1, 401, 117	5.03

Missouri	1, 829.1	1, 784.7	44.4	0.024	3, 703, 540	2.32
Montana	260.9	207.6	53.3	0.204	485, 339	4.42
Nebraska	455.3	431.5	23.8	0.052	1, 153, 432	4.70
Nevada	546.3	521.7	24.6	0.045	1, 823, 343	3.33
New Hampshire	562.7	534.0	28.7	0.051	886, 212	24.89
New Jersey	2, 744.1	2, 744.1	0.0	0.000	11, 580, 927	6.40
New Mexico	749.8	657.2	92.6	0.123	1, 361, 918	3.69
New York	3, 821.0	3, 776.4	44.6	0.012	12, 073, 083	7.45
North Carolina	3, 488.4	3, 323.3	165.1	0.047	4, 722, 750	1.74
North Dakota	147.9	135.9	12.0	0.081	353, 564	10.03
Ohio	3, 974.1	3, 942.0	32.1	0.008	8, 578, 903	−0.99
Oklahoma	1, 164.1	1, 041.0	123.1	0.106	2, 243, 851	1.10
Oregon	1, 020.7	977.6	43.1	0.042	2, 593, 685	3.73
Pennsylvania	4, 259.7	4, 178.8	80.9	0.019	9, 003, 834	8.17
Rhode Island	351.9	351.9	0.0	0.000	779, 362	1.30
South Carolina	1, 838.6	1, 754.2	84.4	0.046	2, 396, 423	1.84
South Dakota	169.6	145.2	24.4	0.144	392, 081	7.71
Tennessee	2, 424.3	2, 019.7	404.6	0.167	3, 526, 288	3.59
Texas	7, 095.7	6, 245.7	850.0	0.120	16, 997, 167	6.14
Utah	690.4	663.1	27.3	0.040	1, 962, 654	12.74
Vermont	147.7	125.1	22.6	0.153	227, 237	14.19
Virginia	2, 374.4	2, 240.1	134.3	0.057	5, 322, 376	2.48
Washington	2, 052.2	2, 037.5	14.7	0.007	4, 743, 718	7.97
West Virginia	563.7	498.1	65.6	0.116	819, 313	8.51
Wisconsin	1, 658.6	1, 584.8	73.8	0.044	3, 645, 089	0.56
Wyoming	169.3	157.0	12.3	0.073	316, 740	3.60
Overall mean	1835.00	1730.60	104.39	0.08	4,339,453	5.88
(SD)	(1751.96)	(1665.79)	(149.03)	(0.08)	(5,420,908)	(5.22)

Note: All areas are measured in square miles.

mean percentage change across the states was 5.88 ($SD = 5.22$) The issue of reliability is discussed in greater detail in the limitations section of this paper.

Table 2 summarizes state rankings according to their measures of absolute and relative underserved areas. A moderate correlation was observed among these measures ($\rho = .60$). The differences in the measures are revealed in the scatter plot (see Figure 2). Vertical distance from the diagonal reveals the discrepancy between the two measures. States ranked low on the absolute measure and higher on the relative measure (e.g., Florida and California) are doing a better job of effectively locating treatment programs in urban areas than states ranked high on the absolute measure and lower on the relative measure (e.g., Vermont and South Dakota). These differences in the rankings on the two measures (absolute and relative) reveal states that have smaller proportions of their population underserved. Comparative study is needed to learn the causes of these discrepancies and ways of reducing them.

Visual inspection of the maps revealed that most urban areas had multiple treatment programs with overlapping service catchment areas (see Figure 3 as an example). There were no urban areas that were without outpatient treatment programs. The total underserved urban area for each state is an aggregate of underserved areas found along the boundaries of large urban areas and small urban clusters dispersed throughout the state. Because of this trend in the data, the visual inspections had to focus on particular regions within the state rather than the state as a whole. Specifically, very little detail could be observed in the maps at the state level. Moreover, small states had almost complete coverage by their respective service catchments (e.g., New Hampshire), so the maps of these states did not offer any real advantages.

Discussion

The purpose of the study was to identify urban areas in the United States without access to outpatient SUD treatment. Treatment programs were spatially located using a GIS with a 15-mile radius to reflect the service catchment areas. Urban areas outside of the service catchment were considered underserved. Moderate correlations between area and population indicate that some states do a better job than others in locating SUD treatment programs. California, for example, is ranked third highest in absolute underserved urban area but 25th in relative underserved urban area, with less than 5% of its area being underserved. In contrast, Texas ranked first on the absolute measure and 10th on the relative measure, with 12% of its urban area underserved. California has the largest urban population, and Texas has the second largest, but the number of urban square miles is similar for these two states. This gives California a higher density and thus brings more people into the service catchment areas.

States ranked consistently high on both the absolute and relative measures are the least efficient in providing access to treatment programs. The absolute and underserved populations in Arkansas (ranked 5th and 1st, respectively), Mississippi (ranked 6th and 2nd, respectively), Iowa (ranked 8th and 4th, respectively), and Tennessee (ranked 2nd and 6th, respectively) range from 13.6% to 32.6%, with an average of 23%. Locating programs in central urban areas could reduce these percentages. The most efficient distribution of programs will match the distribution of population across the state. Tracking these patterns and locating or re-locating programs accordingly will allow states to reduce the number of underserved populations.

Interestingly, the five states with the lowest relative measures (best accessibility) also have the lowest absolute measures. Even though the amount of urban area in these five

Table 2
State rankings based on absolute and relative measures of underserved areas

Ranking	Absolute underserved urban area (Highest to lowest)	Relative underserved urban area (Highest to lowest)
1	Texas	Arkansas
2	Tennessee	Mississippi
3	California	Alaska
4	Georgia	Iowa
5	Arkansas	Montana
6	Mississippi	Tennessee
7	Florida	Vermont
8	Iowa	South Dakota
9	Alabama	New Mexico
10	North Carolina	Texas
11	Louisiana	West Virginia
12	Virginia	Idaho
13	Oklahoma	Oklahoma
14	Arizona	Alabama
15	Illinois	Georgia
16	New Mexico	Louisiana
17	South Carolina	Kansas
18	Pennsylvania	North Dakota
19	Wisconsin	Wyoming
20	Kansas	Arizona
21	West Virginia	Virginia
22	Michigan	Nebraska
23	Alaska	New Hampshire
24	Minnesota	Delaware
25	Montana	California
26	Indiana	North Carolina
27	Idaho	South Carolina
28	New York	Nevada
29	Missouri	Wisconsin
30	Oregon	Oregon
31	Massachusetts	Utah
32	Ohio	Florida, Minnesota
33	New Hampshire	Illinois
34	Utah	Missouri
35	Nevada	Indiana
36	South Dakota	Pennsylvania, Michigan
37	Nebraska	Kentucky
38	Vermont	Massachusetts, Maine
39	Kentucky	New York
40	Delaware	Ohio
41	Washington	Washington
42	Wyoming	Connecticut
43	North Dakota	Hawaii
44	Connecticut	Colorado
45	Colorado	Maryland
46	Maine	Rhode Island, New Jersey
47	Maryland	—
48	Hawaii	—
49	Rhode Island, New Jersey	—

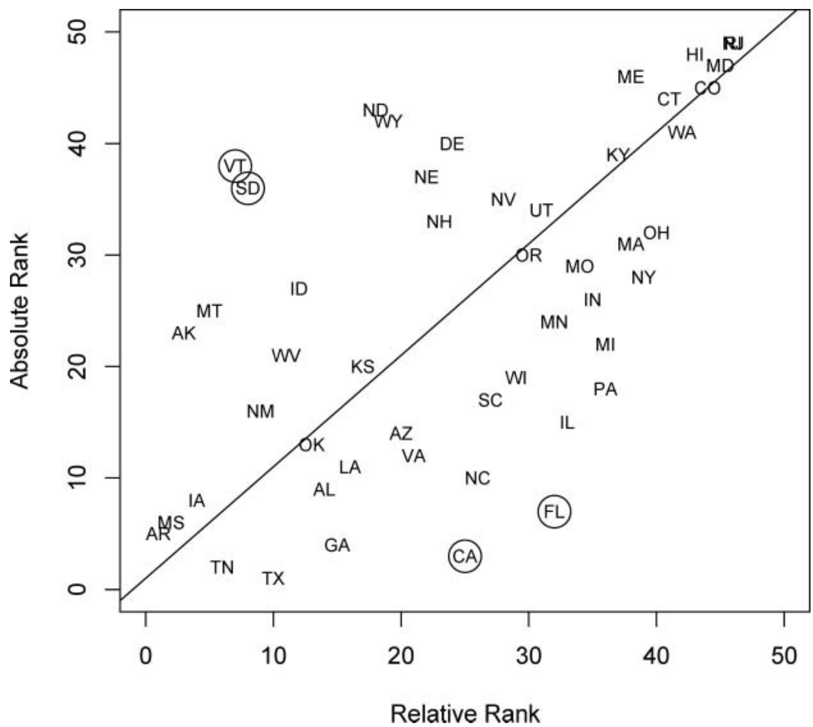

Figure 2. Comparison of absolute and relative rankings of underserved geographic areas. (Note: Values closest to the origin represent the states with the largest underserved areas. States with circles exhibit the largest discrepancy between the absolute and relative rank.).

states is quite different – Rhode Island (351.9), New Jersey (2,744.1), Maryland (1,768.2), Colorado (1,268.8), and Hawaii (322.5) – most people in these states live in the urban areas. In Maryland, Colorado, and Hawaii, a very small proportion of the population lives outside of an urban area. There may be an urban bias in SUD treatment programs. On the one hand, this is reasonable since locating in urban areas offers access to most people. On the other

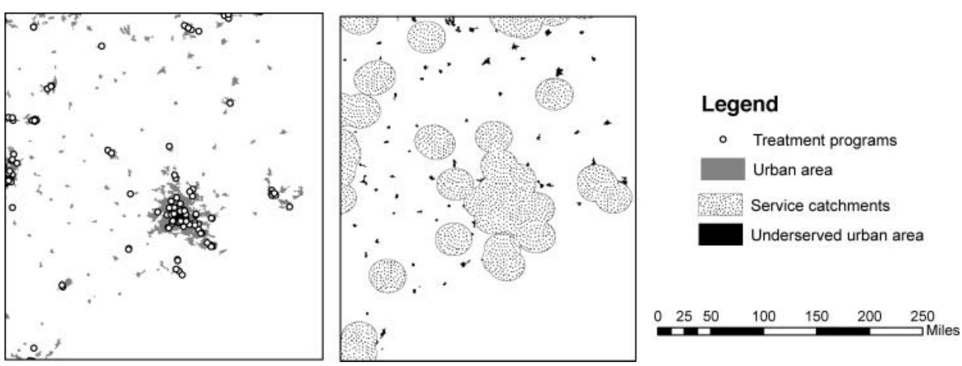

Figure 3. Map of trend showing underserved areas being located at the perimeter of urban areas and in urban clusters outside of urban areas.

hand, it ignores actual living patterns and thus reduces accessibility for certain population clusters.

The 15-mile service catchment area used in this study is most likely an overestimate of the maximum travel distance to a program. Specifically, a full course of outpatient SUD treatment involves a considerably larger number of visits over a longer period of time than the model of Fortney et al. (1995). Moreover, according to the Center for Substance Abuse Treatment (CSAT), the majority of persons in SUD treatment have psychiatric disorders and are of low socio-economic status (CSAT, 2004). These are factors that would further reduce the predicted probability of attendance. Future research with regional analyses, which includes transportation systems and modes of client transportation, can help identify service catchments with greater precision.

Using GIS to examine the accessibility of SUD treatment programs can support other quality improvement initiatives. For example, the Institute of Medicine (IOM) considered quality improvement in the SUD and psychiatric system of care a priority in its framework for reshaping the US healthcare system (Institute of Medicine: IOM, 2006). As demonstrated in this study, GIS can effectively identify areas that lack access to services. The existing service catchments can then be carefully assessed to identify transportation barriers, quality of services, and quantity of services. This systematic and targeted approach can maximize limited resources. GIS can also be a tool for targeting new services.

Study Limitations

The findings of this descriptive study must be understood within the context of its limitations. Foremost, US Census data from the year 2000 was used to define the size and population of urban areas. Thus, the changes that have occurred over time are not reflected in this analysis. This is an important issue for states that have experienced significant population changes over the past 5 years. For example, from 2000 to 2006, the US Census Bureau (n.d.) estimates a population increase of approximately 6.4%. Some states exhibited a significantly higher rate of change during this period of time, which suggests that some estimates may be less reliable (see Table 1). Given that changes in the healthcare system tend to be slow, it is likely that the underserved areas for states with the highest rates of changes are underestimated. These changes also underscore the importance of replicating this paper when the next Census data are available.

Another limitation is that this paper did not control for the heterogeneity in urban transportation systems across the United States (Gillespie and Martin, 1978). The 15-mile catchment area may be a maximum limit for areas with good public transportation. However, the maximum limit may be significantly lower in urban areas with poor or no public transportation system. National data are not available to address how clients actually get to treatment programs. This study focused primarily on measures of distance, but differences in time are also important to consider, as some urban areas may have weaker forms of public transport.

Implications for Practice

Overall, this study highlighted significant variation across states in the amount of urban area and population that lacks access to outpatient SUD treatment. States that have many dispersed urban areas face a significant problem of effectively locating services to fill these gaps. GIS is a potentially useful tool, as it provides a way of optimizing location while incorporating a wide range of data, including but not limited to treatment need, population densities, demographics, and transportation systems. The results of this study underscore the importance of balancing issues of program efficiency versus equity. That is, although it may be more efficient to have a smaller number of larger programs, doing so may create barriers in service accessibility. A smaller number of programs may be less efficient, but it increases availability. GIS is a tool that can be used to carefully examine this issue and aid in the selection of locating new programs, while also taking into account variations in local service needs and transportation issues.

Future research is needed to understand the decision-making roles that treatment providers, policymakers, the public, and other stakeholders engage in to further understand variations between states in policy and program development. This information, linked with the development of data sources that include spatially referenced data, can open up new avenues for research to support quality improvement initiatives, especially related to service access and use.

Declaration of Interest

The authors report no conflict of interest. The authors alone are responsible for the content and writing of this paper no financial support was received for this study.

RÉSUMÉ

L'objectif de cette étude était d'évaluer la disponibilité des programmes de traitement externes des patients toxicomanes aux Etats-Unis. Un système d'information géographique était utilisé pour situer les programmes de traitement, pour établir les zones et pour déterminer la densité de la population dans les zones spécifiques. Les zones urbaines étaient schématisées avec les données du Recensement des Etats-Unis (2000). Les adresses des programmes de traitement ont été obtenues du site web de la «*Substance Abuse and Mental Health Services Administration* ». Un bassin de population avec un rayon de 24.14 kilomètres (15 miles) a été établi autour de chaque site des programmes de traitement. La superficie exclue de ces bassins représente les régions insuffisamment desservies. Le territoire complet et la population totale avec ce manque de service ont été identifiés dans chaque état. Une variance importante a été observée entre les états en ce qui concerne les régions et populations totales qui sont insuffisamment desservies. Les corrélations modérées parmi les régions et les populations suggèrent que certains états sont plus efficaces que d'autres à situer les programmes de traitement pour les patients toxicomanes.

Mots-clefs : Disponibilité des services; le traitement des personnes toxicomanes; les systèmes d'information géographiques

RESUMEN

El objetivo de este estudio fue examinar la disponibilidad de programas de tratamiento del abuso de sustancias para pacientes externos en los Estados Unidos. Un sistema geográfico informativo estuvo empleado para localizar los programas para pacientes externos, calcular su zona y establecer la densidad de población dentro de las regiones especificas. Se trazó regiones urbanas con los datos del Censo de los Estado Unidos (2000). Las direcciones de los programas de tratamiento se consiguieron a través del sitio web de la Administración de Salud Mental y Abuso de Sustancias, en la pagina de localización de instalaciones. Una zona de captación de 24.14 kilómetros (15 millas) alrededor de cada programa de tratamiento fue identificado. La cantidad de territorio urbano que se ubicó fuera de las zonas de captación constituye las zonas con una carencia de servicios. Las zonas y personas con una carencia de servicios fueron calculadas por cada estado. Se descubrió una gran variabilidad en las zonas y poblaciones urbanas con carencias de servicios entre estados. Correlaciones moderadas entre las zonas y poblaciones indican que algunos estados son más efectivos en localizar los programas de tratamiento que otros.

Palabras claves: disponibilidad de servicio; tratamiento del abuso de sustancias; los sistemas geográficos informativos

THE AUTHORS

Brian E. Perron, After completing his PhD at Washington University in 2007, Dr. Perron joined the faculty at the University of Michigan, School of Social Work. Previously, he worked as a clinical social worker in community mental health, providing services to persons with serious mental illnesses and substance use disorders. His research focuses on issues related to the quality of care for persons with mental illnesses and substance use disorders. He is involved in a variety of research activities, including analysis of nationally representative data and clinic-based surveys, and collaborating on field-based interventions. Dr. Perron is also interested in innovative research methodologies and provides statistical consultation for a number of projects.

David F. Gillespie, Professor Gillespie is a national expert in the area of disaster preparedness and mitigation, specifically the integration of social work and social services with emergency management. Professor Gillespie teaches social measurement and structural equation modeling at the doctoral level and organizational dynamics and disaster preparedness at the master's level. Professor Gillespie is a member of the FOCUS St. Louis Regional Disaster Preparedness Task Force, a cross-section of 30 citizen leaders representing a range of perspective and skills charged with assessing the region's readiness for a major disaster.

Ben Alexander-Eitzman, Ben Alexander-Eitzman is an assistant professor of social work at Appalachian State University in Boone, NC. He continues his research on adult homelessness and substance abuse that was initially funded through a NIDA dissertation grant at the George Warren Brown School of Social Work at Washington University. He also is engaged in several research projects focused on improvements in mental health services and innovative crisis intervention programs throughout North Carolina.

Jorge Delva, Jorge Delva, a native of Chile, is the co-director of the Vivian A. and James L. Curtis School of Social Work Research and Training Center. The main aim of the Curtis Center is to create a multidisciplinary environment that will facilitate collaboration among investigators to increase their competitiveness in securing funding and advancing their research agendas. With funding from NIH, RWJF, and other sources, his research has focused on studying trends and effects of individual risk and protective factors on substance use and childhood obesity while taking into account neighborhood and other contextual level factors. He is particularly interested in how these factors manifest themselves among racial and ethnic minority populations and between cultures in the United States and internationally. He is also a faculty associate with the Center for Social Epidemiology and Population Health in the School of Public Health, and the Institute for Social Research at the University of Michigan.

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