HHS Public Access

Author manuscript

J Health Care Poor Underserved. Author manuscript; available in PMC 2016 July 27.

Published in final edited form as:

J Health Care Poor Underserved. 2015 August ; 26(3): 1032–1047. doi:10.1353/hpu.2015.0083.

Not Near Enough: Racial and Ethnic Disparities in Access to Nearby Behavioral Health Care and Primary Care

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Abstract

Background—Racial, ethnic, and geographical health disparities have been widely documented in the United States. However, little attention has been directed towards disparities associated with integrated behavioral health and primary care services.

Methods—Access to behavioral health professionals among primary care physicians was examined using multinomial logistic regression analyses with 2010 National Plan and Provider Enumeration System, American Medical Association Physician Masterfile, and American Community Survey data.

Results—Primary care providers practicing in neighborhoods with higher percentages of African Americans and Hispanics were less likely to have geographically proximate behavioral health professionals. Primary care providers in rural areas were less likely to have geographically proximate behavioral health professionals.

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Conclusion—Neighborhood-level factors are associated with access to nearby behavioral health and primary care. Additional behavioral health professionals are needed in racial/ ethnic minority neighborhoods and rural areas to provide access to behavioral health services, and to progress toward more integrated primary care.

Keywords

Racial disparities; behavioral health; primary care; colocation; rural health disparities, health policy

The identified unmet need for mental health and substance use services, hereafter referred to as behavioral health, increases every year in the United States, with 7.2 million individuals experiencing unmet mental health need in 2010, up from 4.3 million in 1997.[1] A high proportion of individuals diagnosed with a behavioral health diagnosis do not receive any treatment, and those who do receive it primarily do so in general medical settings.[2] Compared with the general population, persons of racial and ethnic minority groups, the uninsured, those living in low-income or rural areas and other underserved segments of the population experience even greater unmet need for behavioral health services.[1–7] Many of the leading distal causes of mortality in the United States[8]—including tobacco use, poor diet, physical inactivity, and alcohol consumption—can benefit from behavioral health expertise.[9]

Individuals experiencing multiple chronic conditions are also less likely than others to have access to behavioral health services,[3] despite the evidence that individuals with these chronic health conditions coupled with behavioral health comorbidities usually have poorer health outcomes and higher cost than those with chronic health conditions alone.[10,11] To address the compounding effect of behavioral health and physical health comorbidities, an increasing body of evidence supports the strategy of integrating behavioral health providers into primary care settings, the first and only place of contact for many people with behavioral health conditions.[9,10,12–16]

Nearly 25% of behavioral health services are provided by primary care providers rather than behavioral health professionals (including anxiety and mood disorders),[2] but primary care providers may often provide suboptimal behavioral health care.[17,18] In response, mental health professionals such as psychologists, family therapists, psychiatrics, social workers, and licensed professional counselors have been integrated into many primary care settings and neighborhoods to address the multifaceted health needs of primary care patients in collaboration with primary care providers.

Integrated behavioral health and primary care includes the provision of collaborative, team-based behavioral health and primary care services in the same setting.[9] Evidence suggests that the provision of integrated care can provide a multitude of benefits for patients and practitioners alike. The delivery of integrated care services has been associated with improved clinical outcomes,[19,20] and improved patient[21] and provider satisfaction.[22,23] Although some level of collaboration can be achieved without physically co-locating behavioral health professionals in the same clinic as primary care professionals, fully integrated care models that achieve routine collaboration and team-based care begin with

colocation of services. Primary care providers with geographic proximity (e.g., in the same neighborhood or within walking distance) to behavioral health services may be seen as a starting point for neighborhood-level integration of care. Neighborhood definitions have been extensively discussed in the literature,[24,25] yet, to the authors' knowledge, no widely-accepted definitive methodology exists to define neighborhoods most accurately.

Several studies that examine the general provision of medical services and those targeted towards behavioral health services have described the influence of geography and neighborhood-level factors on health.[26–30] In fact, models of health care utilization have included geographic factors since the 1960s.[31,32] A patient's geographic location is not only associated with access to and utilization of services,[30,33,34] but also with outcomes of care.[35]

However, despite the multitude of documented health disparities associated with unmet need for behavioral health services[1–7] and the growing body of evidence supporting integrated primary care,[19–23] little is known about disparities in access to integrated care. This study aims to help fill that gap by examining neighborhood demographic, housing, and socioeconomic conditions associated with presence of geographically proximate behavioral health professionals among medical primary care services.

Methods

Publicly available National Provider Identifier (NPI) data (2010) from the National Plan and Provider Enumeration System (NPPES) were used to identify physicians and behavioral health providers who bill third party payers for medical or behavioral health services.[36] These data were merged with the 2010 American Medical Association (AMA) Physician Masterfile (2010)[37] to identify physicians providing direct patient care in the United States. Primary care providers included individuals with specialties listed as family medicine, general practice, general internal medicine or pediatrics. Behavioral health providers included psychiatrists, psychologists, social workers, marriage and family therapists, and mental health counselors. Provider addresses were geocoded using Esri's ArcGIS software[38] matching to a NAVTEQ address database,[39] to identify providers in close geographic proximity or in shared space. Primary care providers located within approximately one kilometer of a behavioral health provider were considered to have access to geographically-proximate behavioral health services.[40] These data were merged with the American Community Survey (ACS) (2010, 5-year estimates),[41] an annual nationally-representative survey administered by the United States Census Bureau,[42] to incorporate population, housing, and other neighborhood level variables. ZIP Code Tabulation Areas (ZCTA) were used to merge primary care provider and ACS data.

A clustered multinomial logistic regression model (n=197,838 providers) was utilized to evaluate neighborhood-level factors associated with non-access to behavioral health among primary care providers (outcome variable). Sub-analyses were performed to examine specific factors associated with access to geographically-proximate care in primary care provider neighborhoods with a high percentage of minority populations and rural/ urban areas. Independent variables of interest include geography (rural versus urban) and percentage of minorities living in primary care provider site neighborhoods. Rurality is

defined by non-metro counties using Rural-Urban Continuum (RUC) codes that indicate that the location is “more than 60 minutes or greater road travel to the closest edge of an Urbanized Area and more than 30 minutes or greater road travel to the closest edge of a large Urbanized Cluster of 10k population or greater.”[43][p. 1] Minority neighborhoods are defined by percentage of African American and Hispanic individuals residing in a given ZCTA.

Results

Basic provider and provider neighborhood demographic characteristics appear in Table 1.

General results

For every 10% increase in the African American population within a neighborhood (compared with White), primary care physicians were 6.5% more likely to not have geographically-proximate behavioral health services (p<.001). For every 10% increase in the neighborhood Hispanic population (compared with non-Hispanic), primary care physicians were 8.5% more likely not to have geographically-proximate behavioral health services (p=.001).

Primary care physicians located in rural areas were 20.1% more likely not to have geographically-proximate behavioral health services, compared with urban-located physicians (p<.001).

For every 10% increase in the neighborhood uninsured population (compared with insured), primary care physicians were 14.6% more likely to not have geographically-proximate behavioral health services (p=.002).

General multinomial logistic regression results are found in Table 2.

Neighborhoods with greater than 25% minority population

Among providers located in communities with greater than a 25% African American population or a 25% Hispanic population (n=62,639), rural health communities were 45.8% more likely to not have geographically-proximate behavioral health services (p<.001). Additionally, for every 10% increase in the neighborhood uninsured populations (compared with the insured) primary care physicians were 29.9% more likely to not have geographically-proximate behavioral health services (p<.001).

Multinomial logistic regression results for neighborhoods with greater than 25% minority populations are found in Table 3.

Rural health communities

Among providers located in rural communities (n=27,759), for every 10% increase in the African American populations (compared with Whites) primary care physicians were 8.9% more likely to not have geographically-proximate behavioral health services (p=.001). In rural communities, insurance status was not significantly associated with geographically-proximate behavioral health services.

Multinomial logistic regression results for physicians located in rural communities are found in Table 4.

Urban communities

Among providers located in urban communities (n=170,079), for every 10% increase in the African American populations (compared with Whites) primary care physicians were 5.8% more likely to not have geographically-proximate behavioral health services (p<.001). For every 10% increase in the neighborhood Hispanic population (compared with non-Hispanic), primary care physicians were 8.7% more likely to not have geographically-proximate behavioral health services (p=.002). Additionally, for every 10% increase in the neighborhood uninsured populations (compared with the insured) primary care physicians were 19.7% more likely to not have geographically-proximate behavioral health services (p<.001).

Multinomial logistic regression results for physicians located in urban communities are found in Table 5.

Discussion

A broad range of disparities are associated with access to behavioral health services, including racial, ethnic, and geographical disparities.[1–7] This national study focuses on neighborhood-level access to geographically-proximate behavioral health and primary care services.

Our findings suggest that primary care providers who practice in rural areas and/or communities with increased African American and Hispanic populations (compared with White) have fewer community resources to refer patients to behavioral health professionals. These findings are consistent with previous research on disparities in access to mental health services.[29,33,44] When comparing rural and urban communities, neighborhood-level insurance status is only significantly associated with access to behavioral health professionals in urban settings. Therefore, primary care physicians located in urban communities with high percentages of minority and uninsured populations experience the greatest unmet need for geographically-proximate behavioral health professionals. These findings provide a neighborhood-level focus to target policy to reduce these disparities and to improve the health of underserved communities. To improve patient access to behavioral health services, behavioral health professionals must practice in these communities and/or primary care providers need the individual capacity to provide behavioral health services.

Research suggests several approaches to improving health care workforce capacity in underserved communities, though evidence supporting certain strategies is limited. Strong evidence suggests that individuals with rural origins and/or rural health career intent are associated with a future choice to practice in rural settings.[45] Therefore educational programs may want to target recruitment and admission from these populations. Training programs or satellite campuses located in rural areas may also improve the rural health workforce. Inconsistent evidence suggests that health professionals of racial and ethnic minority backgrounds may be more likely to provide care in communities with large

proportions of racial and ethnic minority populations.[45–48] Continued research in this area is needed with special attention to behavioral health professionals.[49]

State and national policies also have potential to simultaneously improve the behavioral health workforce and the access to behavioral health services in primary care. For instance, loan forgiveness programs and scholarships targeted toward providers practicing in underserved communities could improve the primary care and behavioral health workforce in underserved areas.[50] National Health Service Corps scholarships and loan repayment programs[51] in addition to Minority Fellowship Programs funded through the Substance Abuse and Mental Health Services Administration[52] explicitly place primary care and behavioral health professionals in underserved health professional shortage areas. Payment reform policies could support the provision of integrated primary care clinics that provide collaborative, team-based, same-day primary care services and behavioral health services in shared clinical space.[51,53–55] Health care safety-net organizations and delivery systems such as federally qualified health centers (FQHCs) and accountable care organizations (ACOs) are encouraged to locate in such communities to reduce disparities faced in these communities. These types of practices and organizations have been found to pursue integrated services when there is high patient demand and access to behavioral health services in the community is scarce.[56] However, primary care safety-net organizations such as federally-qualified community health centers have reported barriers to providing various behavioral health services, especially for their uninsured clients.[57]

Our findings also offer insight into neighborhood-level barriers to the achievement of optimal comprehensive health outcomes, including behavioral health. Despite the inability to directly examine patient level health outcomes in the present study, research suggests that people living in disadvantaged neighborhoods are more likely to experience poor health outcomes, including behavioral health.[58–62] Availability and proximity of care in one's own neighborhood can reduce travel distance, which has been shown to be an important factor associated with visit attendance.[63,64] Future research could examine how access to neighborhood primary care and behavioral health services may or may not be associated with health and wellness outcomes.

Further research is needed to disentangle the continuum of geographically-proximate care, co-located care, and integrated services from the process and outcomes[65] of care in each of these settings. It is well understood that mere physical proximity among providers is not sufficient for collaboration and team-based care, but may be one of the many starting points for integrated behavioral health and primary care efforts. Future research and classification efforts may provide further understanding into the factors that are necessary and/or sufficient for achieving fully integrated care in all community settings.

Limitations

This study includes a nationally representative sample of primary care providers and leverages the ability to geocode primary care provider location with respect to the geocoded locations of behavioral health professionals. However, several limitations should be considered when interpreting study results. First, the independent variable indicating geographically-proximate care only indicates if a behavioral health provider is located

within approximately one kilometer radius of the primary care provider and does not indicate whether working relationships between the providers have been established. Despite the physical proximity of behavioral health and primary care providers, nothing is known about the actual collaborative nature of these professionals, or even if they are aware of each other's presence in the community. This study assumes that if a behavioral health provider is located close to a primary care provider, the primary care provider will have improved opportunity to refer patients and increased probability that patients will follow-up with these referrals. This is not likely the true scenario faced by primary care providers, but due to data limitations this is the best measure of access to behavioral health and primary care services in this dataset.

Contextual variables of neighborhood-level factors were linked at the ZIP Code Tabulation Area (ZCTA) level, which is a conglomeration of adjacent ZIP codes based on census tract ZIP code commonality. The confines of these areas were designed under influence of U.S. census blocks, but do not perfectly follow census units. As a result, some of the ZCTAs cover strangely defined space and may not correspond to a true neighborhood designation of the primary care provider. Despite the modifiable areal unit problem, ZCTAs were the most appropriate, and available, units of measurement.[66]

The empirical unit of analysis for these findings is the practicing primary care provider. To identify practicing providers, both the NPPES file and AAMC Physician master file was used. However, it is possible that physicians that retired between data collection rounds may be included in the dataset. While this perspective provides useful insight into access to referral and potential for collaboration with geographically proximate behavioral health providers, it fails to account for patient-level factors (such as insurance status and access to transportation) integral to access to care. For instance, literature suggests that neighborhood-level factors such as a large percentage of minority populations or limited social cohesion (e.g., getting along with neighbors, depending on neighbors for emergencies) are associated with limited access to primary care services.[67–69] These challenges are exacerbated by workforce training factors such as the shortage of medical graduates practicing in underserved areas such as medically underserved areas and provider shortage areas and the inadequate supply of primary care practitioners.[70] In our study, neighborhoods lacking primary care providers were not evaluated. Therefore, given these documented disparities described above, our results likely underestimate the neighborhood level disparities associated with access to primary care and behavioral health services from the patient perspective.

Finally, neighborhood-level variables may or may not represent the true likelihood that patients can attend a clinic location in their neighborhood of residence. For example, physicians may only accept a few uninsured patients per year, despite being located in a neighborhood consisting of many uninsured individuals.

Conclusion

The present study examines access to neighborhood-level behavioral health and primary care services. Physicians practicing in neighborhoods with high percentages of African Americans, high percentages of Hispanic populations and in rural areas are more likely to

not have access to geographically-proximate behavioral health professionals. This research is consistent with prior studies demonstrating increased unmet need for mental health services in such communities, and provides additional insight into access to integrated services. Findings suggest that targeted health policies and resources are required to encourage the provision of behavioral health services in underserved communities. Ideally, these services should be provided in fully integrated primary care clinics that include behavioral health to help defragment health care and address the multi-faceted needs of the nation's population.

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Table 1

PRIMARY CARE PHYSICIAN MEASURES AND NEIGHBORHOOD CHARACTERISTICS

		Average	Standard Deviation
Primary Care Provider Measures			
Geographic Proximity[a]	Percentage located within 1 km of behavioral health professional	145,438 (73.5%)	
Clinic Size	Primary Care Clinicians at clinic site	20.59	47.46
Location[a]	Northeast	35,633 (18.0%)	
	Midwest	46,745 (23.6%)	
	South	68,0667 (34.4%)	
	West	47,393 (24.0%)	
Neighborhood Characteristics			
Rurality[a]	Rural location	27,757 (14.0%)	
Race and Ethnicity	Percentage African American	12.93	18.03
	Percentage Other Race	8.15	9.23
	Percentage Hispanic	14.80	18.53
Socioeconomic Factors	Percentage primary language other than English	20.25	19.98
	Percentage married	48.65	11.55
	Percentage uninsured	12.50	6.55
	Percentage over 25 years old with only high school education or GED equivalent	23.83	9.39
	Percentage disabled	12.10	4.75
	Percentage renter occupied housing	40.21	19.21
	Percentage primary utilizing public transportation	6.11	11.93
	Median household income (USD)	55,811.92	23,466.01

[a]Statistics are presented as a count and percentage for categorical variables

Table 2

NON-ACCESS TO GEOGRAPHICALLY-PROXIMATE CARE: ALL PRIMARY CARE PROVIDERS (N=198,466)

	Odds Ratio	p-value	95% Confidence Interval	
Percentage African American[a]	1.065	.000	1.041	1.090
Percentage Other Race[a]	1.027	.170	0.988	1.068
Percentage Hispanic[a]	1.085	.001	1.035	1.138
Percentage Uninsured[a]	1.146	.002	1.052	1.249
Rural Location	1.201	.000	1.102	1.308
Number of Primary Care Physicians	0.940	.000	0.932	0.949
Percentage Primary Language non-English[a]	0.864	.000	0.819	0.912
Percentage Married[a]	1.430	.000	1.348	1.517
Percentage (over age 25) with only High School Education or GED Equivalent[a]	1.338	.000	1.270	1.409
Percentage any Disability[a]	0.669	.000	0.604	0.740
Percentage Renter Occupied Housing[a]	0.786	.000	0.757	0.817
Median Household Income	1.000	.000	1.000	1.000
Constant	0.385	.001	0.221	0.668

[a]Unit of change equals 10%

Table 3

NON-ACCESS TO GEOGRAPHICALLY-PROXIMATE CARE: PRIMARY CARE PROVIDERS LOCATED IN MINORITY NEIGHBORHOODS (N=62,639)

	Odds Ratio	p-value	95% Confidence Interval	
Percentage African American[a]	1.098	.004	1.030	1.170
Percentage Other Race[a]	1.086	.000	1.041	1.132
Percentage Hispanic[a]	1.147	.000	1.068	1.231
Percentage Uninsured[a]	1.299	.000	1.127	1.497
Rural Location	1.458	.000	1.213	1.753
Primary Care Physicians on Site	0.941	.000	0.929	0.953
Percentage Primary Language non-English[a]	0.815	.000	0.752	0.884
Percentage Married[a]	1.373	.000	1.228	1.535
Percentage (over age 25) with only High School Education or GED Equivalent[a]	1.270	.000	1.126	1.432
Percentage any Disability[a]	0.654	.000	0.539	0.793
Percentage Renter Occupied Housing[a]	0.749	.000	0.704	0.797
Median Household Income	1.000	.000	1.000	1.000
Constant	0.548	.270	0.189	1.594

[a]Unit of change equals 10%

Table 4

NON-ACCESS TO GEOGRAPHICALLY-PROXIMATE CARE: PRIMARY CARE PROVIDERS LOCATED IN RURAL COMMUNITIES (N=27,759)

	Odds Ratio	p-value	95% Confidence Interval	
Percentage African American[a]	1.089	.001	1.037	1.144
Percentage Other Race[a]	0.874	.000	0.822	0.928
Percentage Hispanic[a]	1.036	.474	0.940	1.142
Percentage Uninsured[a]	1.025	.769	0.870	1.208
Primary Care Physicians on Site	0.916	.000	0.897	0.935
Percentage Primary Language non-English[a]	1.023	.709	0.908	1.152
Percentage Married[a]	1.188	.004	1.057	1.337
Percentage (over age 25) with only High School Education or GED Equivalent[a]	1.296	.000	1.171	1.434
Percentage any Disability[a]	0.869	.092	0.737	1.023
Percentage Renter Occupied Housing[a]	0.746	.000	0.681	0.817
Median Household Income	1.000	.023	1.000	1.000
Constant	1.151	.800	0.387	3.420

[a]Unit of change equals 10%

Table 5

NON-ACCESS TO GEOGRAPHICALLY-PROXIMATE CARE: PRIMARY CARE PROVIDERS LOCATED IN URBAN COMMUNITIES (N=170,079)

	Odds Ratio	p-value	95% Confidence Interval	
Percentage African American[a]	1.058	.000	1.030	1.086
Percentage Other Race[a]	1.081	.002	1.030	1.134
Percentage Hispanic[a]	1.087	.002	1.032	1.146
Percentage Uninsured[a]	1.197	.001	1.081	1.326
Primary Care Physicians on Site	0.944	.000	0.934	0.953
Percentage Primary Language non-English[a]	0.832	.000	0.783	0.884
Percentage Married[a]	1.465	.000	1.369	1.569
Percentage (over age 25) with only High School Education or GED Equivalent[a]	1.368	.000	1.287	1.455
Percentage any Disability[a]	0.593	.000	0.519	0.678
Percentage Renter Occupied Housing[a]	0.791	.000	0.757	0.826
Median Household Income	1.000	.000	1.000	1.000
Constant	0.358	.002	0.188	0.682

[a]Unit of change equals 10%