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An Investigation of Racial and Ethnic Disparities in Service Utilization among Homeless Adults with Severe Mental Illness

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Abstract

Objective—To determine if service disparities exist among severely mentally ill homeless adults, a vulnerable population with a high level of unmet need.

Methods—This study used data collected at baseline for 6,829 black, Latino, and non-Latino white participants in the Access to Community Care and Effective Services and Support study. Outcome variables were measures of utilization of psychiatric outpatient, housing, and case management services in the previous 60 days. The sample was divided into white/black and white/Latino cohorts. Within each cohort, participants were stratified into comparable groups using propensity scores that estimated log-odds of being black or Latino as a function of several confounding variables. White minus black/Latino differences in mean number of visits (a measure of intensity) and in the mean probability of at least 1 visit (a measure of access) were subsequently estimated.

Results—The study sample consisted of 50% black, 6% Latino, and 44% white participants. Service utilization was low for the three services regardless of race/ethnicity. On multivariate analyses of service utilization in the previous 60 days, blacks had fewer psychiatric outpatient visits than whites (mean difference [95% CI] = 0.46 [0.10, 0.81]) yet Latinos had more case management visits than whites (mean difference [95% CI] = −0.51 [−1.03, −0.05]). Access analyses did not reveal disparities.

Conclusions—While blacks have lower intensity of psychiatric outpatient utilization than whites hence experiencing a service disparity, Latinos have higher intensity of case management utilization than whites. Possible contributors and clinical and methodological implications of these results are discussed.

Introduction

Evidence indicates that severely mentally ill people from minority racial and ethnic groups experience service disparities (1,2). Blacks utilize fewer psychiatric outpatient and case management services, and more acute psychiatric services than whites (4–6). Although studied less extensively, Latinos also appear to utilize fewer non-acute psychiatric services than whites (6). Little empirical research exists, however, regarding the existence of service disparities among severely mentally ill adults who are also homeless. Most studies of service utilization in diverse homeless populations have not focused on racial and ethnic disparities or have been conducted in non-naturalistic conditions (7–9). Further, no study has reported on the experience of Latinos.

It is possible that the extreme social disadvantage and severe health risks associated with homelessness may substantially dilute the effects of race/ethnicity on these individuals' service use experience. However, it is important to investigate if service disparities exist among severely mentally ill homeless adults for two reasons. First, blacks are over-represented in this

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population (10). Second, the existence of service disparities would only exacerbate an already challenging situation because homeless people are difficult to treat under any circumstances (7).

To determine whether there are service disparities for black and Latino homeless adults with severe mental illnesses compared to their white counterparts, we re-analyzed data generated by the federally-funded Access to Community Care and Effective Services and Support (ACCESS) study. Although ACCESS was conducted over a decade ago, the insights learned from our disparities-focused analyses remain relevant because access to health and social services has not improved in any substantial way for this underserved population. At a minimum, the information thus generated may be regarded as a baseline profile of service disparities in this population.

Our approach to the study of racial and ethnic service disparities draws from the conceptual framework proposed by the Institute of Medicine where disparities are defined as differences in service utilization that are not explained by differences in clinical need or treatment preferences (3).

Methods

We assessed service disparities by comparing utilization of three services across racial and ethnic groups that were similar with respect to variables associated with service utilization. We used propensity scores to adjust for need-related differences between the groups. Because ACCESS used state as a design variable, we estimated differences in service utilization within states and subsequently combined state-specific estimates.

I. Data Sources and Study Population

We used data generated by the ACCESS program, a quasi-experimental study conducted between 1994 and 1998. The background, methods, and findings of the ACCESS study have been presented in detail elsewhere (11–13). Briefly, ACCESS recruited 7,055 severely mentally ill adults who lacked a fixed, regular, and adequate nighttime residence; people were recruited from the streets, shelters, soup kitchens, and health organizations. Active involvement in mental health treatment was an exclusion criterion. Participants were assessed at baseline and during the course of a year-long intensive case management intervention delivered at 18 sites located in 9 states. Our study focused on baseline data for black, Latino, and non-Latino white ACCESS participants.

II. Key Variables

Outcome Variables—Outcome variables were measures of self-reported utilization of psychiatric outpatient, housing, and case-management services derived from participants' responses to yes/no items used to characterize service utilization (e.g., "Did you meet with someone who helped you find or keep housing?"). If the answer was yes, participants were asked how often in the past 60 days they had met with the respective provider(s). Utilization in the 60-day period preceding study enrollment was captured through measures of intensity of utilization operationalized as mean number of visits, and measures of access operationalized as the probability of any utilization (i.e., at least 1 visit).

Although ACCESS also collected information on use of psychiatric inpatient, substance abuse disorder, medical-dental, and vocational services, we focused on the above 3 services because of their critical importance for this population. That a population saddled with severe mental illnesses and homelessness has a fundamental need for psychiatric outpatient and housing services is self-evident. Our decision to focus on case management services stems from

evidence that these services can improve care coordination, a critical feature of health care for populations of this level of complexity (14), and they may narrow pre-existing disparities (15).

Explanatory Variables—The main explanatory variable was self-reported race/ethnicity, which we used to construct a cohort composed of white and black participants and another composed of white and Latino participants.

In addition, our multivariate model included several variables associated with need for health or social services: age (continuous), sex, marital status (married yes/no), 3 measures of psychiatric need (psychiatric symptoms, psychotic symptoms, and psychiatric burden), substance use disorder diagnosis, medical burden, chronic unemployment, and chronic homelessness.

The measure of psychiatric symptoms is the composite psychiatric score from the Addiction Severity Index (ASI) (16); values could range between 0–1. The measure of psychotic symptoms is a scale adapted from the Diagnostic Interview Schedule (17) and the Psychiatric Epidemiology Research Interview Schedule (18); values could range between 0–40. Psychiatric burden is a count of all clinician-formulated psychiatric diagnoses; values could range between 0–11. For these 3 variables, higher values indicate greater mental health need. Substance use disorder diagnosis is a dichotomous yes/no variable also based on clinician-formulated diagnoses.

Medical burden is a 4-level categorical variable that grouped self-reported medical conditions into 0, 1–2, 3–4, or 5–17 conditions.

Chronic homelessness is a dichotomous variable that indicates whether participants had 1 or more years of lifetime homelessness and had not lived in their own place in the previous 60 days. Chronic unemployment is a dichotomous variable that indicates whether participants' typical employment pattern in the previous year was characterized by sub- or unemployment (19).

Additional variables of interest not included in our primary analyses were 2 indicators of socioeconomic status: income and education. Education is a continuous variable reflecting years of schooling. Income is a continuous variable that measures the total amount of money received on a monthly basis in the previous year from several sources, including earned income, supplemental security income, and panhandling.

III. Statistical Analyses

We compared the racial/ethnic groups with Chi-square tests (categorical variables), and ANOVA and Bonferroni-Dunn test (continuous variables).

Rates of missing data were negligible for race/ethnicity, service utilization, and most variables in our multivariate model. Exceptions were age and medical burden, whose rates of missing data varied by race/ethnicity. Medical burden had the highest rates: 13% (blacks), 16% (Latinos), and 12% (whites).

Data were analyzed using SAS version 9.1 (20). We imputed missing data with Proc MI with MCMC and subsequently created 5 multiply imputed data sets. We used complete-data methods to analyze each data set separately and combined parameter estimates across imputed data sets using standard rules (21).

Adjusted Analyses—Although race/ethnicity is not a modifiable variable, we used propensity scores to adjust for differences in need-related variables between the groups because we wanted to ensure that the racial/ethnic groups were as comparable as possible (22). We estimated models separately for blacks versus whites and then again for Latinos versus whites. We modeled the log-odds of being black (Latino) as a function of the need-related variables included in our multivariate model. We then obtained an estimated logit of being black (Latino) and compared probabilities between participants who were black or Latino and those who were white. Overlap in the distributions of estimated logits suggests that the racial/ethnic groups are comparable on the basis of observed confounding variables.

We created 10 strata for the white/black cohort (3 strata for the smaller white/Latino cohort) based on the empirical deciles (tertiles) of the estimated logits. Next, we evaluated the comparability of the groups by assessing the extent to which they overlapped on each variable. Acceptable comparability was a priori defined as standardized differences between the groups of 10% or smaller (23). Attempts were made to improve comparability by including quadratic terms and interactions in the model.

Estimating Disparities—Because state was a key design aspect of the ACCESS study, we adjusted for state effects by stratifying differences by state and then combining. Specifically, for each state and for each outcome variable and propensity score stratum, we calculated group-specific means and standard deviations (SD) for number of visits. Next, for each cohort we calculated stratum-level mean differences and standard errors (SE) in number of visits between the groups, which we subsequently combined across strata to generate state-level weighted mean +/− SE differences. In a final step, we combined state-level differences across states into an overall weighted mean +/− SE difference (see online Technical Appendix). For each combining step we used the inverse of the variance of the difference as the weight. We used a 2-tailed Z test to evaluate the significance of the differences; differences of positive sign indicate a racial/ethnic disparity whereas differences of negative sign indicate higher intensity of utilization by blacks or Latinos. We repeated these steps using the mean probability of at least 1 visit as the outcome measure thus comparing groups on their access to services.

We conducted additional analyses to evaluate the role of socioeconomic status in the observed disparities. Log-odds of being black or Latino versus white were modeled as a function of the expanded set of variables, whereupon analyses proceeded as above.

We used a critical value of 0.05 to evaluate statistical significance of the P values and report our disparities results along with 95% confidence intervals; we did not control for multiple testing.

Because we used previously collected data that had no personal identifiers our study was granted exempt status by the University of Pittsburgh IRB.

Results

I. Characteristics of the Racial/Ethnic Groups

Our sample consisted of 6,829 participants: 381 Latino (6%), 16% of whom spoke only Spanish; 3,394 black (50%); and 3,054 non-Latino white (44%). The racial/ethnic groups differed in all the need-related variables included in our multivariate model (Table 1). While all groups were unequally distributed across the study states, Latinos were the most geographically concentrated. The only socioeconomic status variable associated with race/ethnicity was education: Latinos had less formal education than blacks and whites.

II. Racial/Ethnic Differences in Service Utilization

Unadjusted Analyses—Service utilization varied substantially across the 9 states (results not shown). Intensity of utilization in the previous 60 days was very low for the 3 services (Table 2). The mean number of psychiatric outpatient (4.03) and housing visits (0.78) was similar for the 3 racial/ethnic groups. However, the mean number of case management visits was higher for blacks (3.01) and Latinos (3.92) than whites (2.52). With regard to access, while blacks had a higher probability than whites of any utilization of psychiatric outpatient or case management services, Latinos had a higher probability than whites of any utilization of housing services (Table 2).

Adjusted Analyses—Based on our operational definition of optimal comparability, our propensity score model generated racial/ethnic groups that were generally well balanced on the variables included in the model (see online Technical Appendix). While all standardized differences were smaller than 10% for the white/black cohort, the white/Latino cohort had only 1 variable with a standardized difference greater than 10%. The standardized difference for psychotic symptoms (−0.13 or −0.21 depending on the imputation) indicates that Latinos were more symptomatic. The expanded model that included education, the only socioeconomic status variable with differences across the groups, had a similar level of comparability.

Whites and blacks had similar intensity of utilization of case management and housing services in the previous 60 days (Table 3). However, whites had approximately 0.5 more psychiatric outpatient visits than blacks (mean [95% CI] = 0.46 [0.10, 0.81]).

Whites and Latinos had similar intensity of utilization of psychiatric outpatient and housing services in the previous 60 days (Table 3). However, Latinos had approximately 0.5 more case management visits than whites (mean [95% CI] = −0.51 [−1.03, −0.05]).

The racial/ethnic groups had similar access to the 3 services as evidenced by their comparable mean probabilities of any utilization (Table 3).

The intensity differences uncovered by our primary analyses disappeared when we controlled for educational differences between the groups (results not shown).

Discussion

Our results indicate that black homeless adults with severe mental illnesses experience a disparity in intensity of utilization of psychiatric outpatient services. The evidence is that blacks had a lower mean number of psychiatric outpatient visits than whites on state-stratified disparities analyses of self-reported service utilization data collected at baseline by the ACCESS study. Although the difference of 0.5 visits is modest in absolute terms, it is quite substantial relative to the unadjusted mean of 4 visits for the previous 60 days. We did not find disparities in intensity of utilization for Latinos. To the contrary, our only significant finding for white/Latino comparisons was the higher Latino utilization of case management services. Here too, although the difference of 0.5 visits appears modest in absolute terms, it is significant given that the unadjusted mean number of case management visits for the previous 60 days ranged between 2.5 and 3.9 for the 3 groups. We did not find access disparities for either comparison.

Consistent with evidence generated by previous research (9,24), we found that our sample had low intensity of utilization of services of critical importance to their well-being. This finding may have been influenced by the ACCESS study exclusion of individuals receiving mental health care at study enrollment. However, the notoriously tenuous connections of homeless adults with severe mental illnesses to the health care system (7,8,25) make it unlikely that our

utilization figures represent a substantial underestimate. Low levels of insurance coverage, social marginalization, and distrust of the system are among the many barriers to care faced by this vulnerable population (26).

Our finding of variable service utilization across states mirrors findings from other areas of health care (27). Possible contributors include state differences in availability of resources for homeless people and the characteristics of the social welfare apparatus, including ease of access to public insurance programs.

Ours is the first study of this population to have assessed disparities separately for blacks and Latinos. A previous study that compared services used by Latinos and whites was based on an incomplete ACCESS data set that focused on utilization during the course and not prior to the study (28).

Our finding of a disparity in intensity of utilization of psychiatric outpatient services for blacks is not consistent with available evidence. A study of homeless mentally ill and/or substance-abusing veterans receiving Veterans Health Affairs (VHA) care found that blacks and whites had comparable service utilization (29). Further, a cost-effectiveness study based on data from a randomized trial of assertive community treatment versus usual care for homeless people with severe mental illnesses found that blacks and whites in the usual care arm had comparable utilization of outpatient mental health services (30,31). However, neither study aimed to systematically evaluate racial/ethnic service disparities. Further, whereas the VHA study may have obscured potential disparities by adjusting for socioeconomic status, the cost-effectiveness study did not adjust for potential need differences between the groups.

Possible contributors to our disparity finding include individual characteristics such as socioeconomic status (32) and characteristics of the service system and the policy environment (1–3,33).

That our disparity finding dissipated upon controlling for education suggests that blacks' lower educational level relative to whites played an important role in this disparity. We were unable to evaluate the role of insurance in this finding because our data lacked insurance information. However, it is unlikely that insurance differences played a major role because we did not find access disparities. Although our state-stratified analyses controlled for state-specific policies that may contribute to disparities, we may not have fully accounted for geographic variations in access and quality of critical services for this population. For example, because we did not control for study site, if the racial/ethnic groups gravitated to different geographic areas served by providers of varying quality (34,35) or cultural and linguistic competency (36), such differences may have influenced our results.

Racial/ethnic differences in service utilization may also result from stigma and negative attitudes toward treatment (37). However, we were unable to assess the role played by these factors in our finding.

That we did not find white-black disparities in intensity of utilization of housing or case management services may point to a smaller effect of education on utilization of these services relative to psychiatric outpatient services, or to a smaller quality gap across providers of non-medical services relative to psychiatric providers.

Our finding that severely mentally ill Latinos who are homeless have higher intensity of case management utilization than whites is new to a literature that even for the larger severely mentally ill population, is sparse in evidence with regard to this ethnic group. Two previous studies that have assessed differences in case management utilization between mentally ill whites and Latinos differed from ours not only in that their samples contained largely domiciled

people but also in that they adjusted by socioeconomic status. While one study found that Latino adults with schizophrenia had *lower* access to these services (38), the second study found *comparable* access for Latino and white children and adults with schizophrenia and other mental illnesses (39).

Socioeconomic differences between whites and Latinos may have contributed to this unexpected finding as evidenced by the fact that the difference disappeared when we controlled for education. Although we do not have an explanation for either finding, it is possible that the excess of case management services received by Latinos may have been targeted to people whose educational deficits encumber their ability to navigate the welfare system. It is unlikely that insurance differences or the presence of Spanish-only speakers explain our finding because both dynamics would likely act in the opposite direction (38,40).

Little is known about whether the magnitude and direction of disparities findings are sensitive to the type of outcome measure used –that is, access versus intensity of utilization. Two studies evaluated mental health disparities with measures of access and measures of quality constructed with data on intensity of utilization. While one study found racial disparities regardless of the measure used (32), disparities findings for the second study were measure-sensitive (41).

This study had several limitations. First, despite propensity score adjustment, we were unable to achieve optimal comparability between whites and Latinos. This imbalance means, however, that our Latino group had greater severity of psychotic symptoms than whites, a fact that may underlie the higher intensity of case management utilization among Latinos (38). Second, because people receiving mental health care at study enrollment were excluded, our findings may not be representative of the typical experience of homeless adults with severe mental illnesses. However, because of the tenuous treatment connections of this population (7,8,25), psychiatric outpatient and case management utilization may not have been substantially higher in the absence of this exclusion criterion. Furthermore, that despite this exclusion criterion utilization of these 2 services was larger than zero for many participants indicates that a substantial fraction of people had been in treatment in the previous 60 days but had dropped out prior to enrolling in the study. Third, although concerns may be raised about our outcomes reflecting self-reported utilization, evidence exists that adults with severe mental illnesses provide reliable utilization data (42). Lastly, we were not able to assess the effect of language because of the relatively small Latino group in our sample.

Conclusions

Our results indicate that black homeless adults with severe mental illnesses experience a disparity in intensity of utilization but not in access to psychiatric outpatient services, a pattern of results that may have been influenced by educational and quality of care differences. We did not find disparities for Latinos –indeed, we found higher intensity of case management utilization for Latinos relative to whites, a finding that appears to have been influenced by the lower educational level of Latinos. Our findings suggest that homelessness is a homogeneizing experience that largely trumps the dynamics associated with disparities in other populations.

If borne out by further research, an implication of our single disparity finding is that more effort needs to be put into maintaining black homeless people with severe mental illnesses engaged in psychiatric treatment once they have accessed services.

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Table 1

Sample Characteristics, by Racial/Ethnic Group

Variable	All (n = 6829)	Blacks (n = 3394)	Latinos (n = 381)	Whites (n = 3054)	P Value
Age, mean +/− SD	37.8 +/− 9.5	37.5 +/− 8.7	37.0 +/− 9.5	38.4 +/− 10.2	<.001
Male, N (%)	4252 (62)	2051 (61)	272 (71)	1929 (63)	<.001
Married, N (%)	366 (5)	160 (5)	30 (8)	176 (6)	0.01
Psychiatric symptoms,[1] mean +/−SD	0.53 (0.25)	0.53 (0.25)	0.59 (0.24)	0.51 (0.24)	<.001
Psychotic symptoms,[2] mean +/−SD	11.1 (9.3)	12.6 (9.4)	14.6 (10.5)	9.0 (8.6)	<.001
Psychiatric burden,[3] mean +/−SD	3.1 (1.7)	3.2 (1.7)	3.2 (1.9)	2.9 (1.7)	<.001
Substance use disorder diagnosis, N (%)	3623 (53)	1982 (58)	202 (53)	1439 (47)	<.001
Medical burden,[4] N (column %)					NS
0 conditions	1209 (18)	633 (19)	69 (19)	507 (17)	
1–2 conditions	2724 (42)	1377 (42)	143 (40)	1204 (41)	
3–4 conditions	1684 (26)	815 (25)	93 (26)	776 (27)	
5+ conditions	946 (14)	443 (14)	57 (16)	446 (15)	
Chronic Homelessness, N (%)	3670 (54)	1939 (57)	204 (54)	1527 (50)	<.001
Chronic Unemployment, N (%)	3361 (49)	1738 (51)	208 (55)	1415 (46)	<.001
Income, mean +/− SD	392 +/− 517	393 +/− 555	337 +/− 433	397 +/− 480	NS
Education (yrs), mean +/− SD	11.6 +/− 2.5	11.5 +/− 2.3	9.6 +/− 3.4	11.9 +/− 2.6	<.001[5]
State, N (column %)					<.001
CT	778 (11)	333 (10)	138 (36)	307 (10)	
PA	788 (12)	614 (18)	24 (6)	150 (5)	
VA	755 (11)	501 (15)	15 (4)	239 (8)	
NC	759 (11)	465 (14)	9 (2)	285 (9)	
TX	757 (11)	257 (8)	57 (15)	443 (15)	
IL	742 (11)	462 (14)	32 (8)	248 (8)	
MO	751 (11)	377 (11)	25 (7)	349 (11)	
KS	803 (12)	211 (6)	25 (7)	567 (19)	
WA	696 (10)	174 (5)	56 (15)	466 (15)	

[1] Measure of overall psychiatric morbidity: composite psychiatric score from ASI; values range 0–1 (see Methods)

[2] Measure of psychotic symptoms: scale adapted from DIS and PERI; values range 0–40 (see Methods)

[3] Number of psychiatric diagnoses; range is 1–11 (see Methods)

[4] Categorical variable reflecting the number of endorsed medical conditions out of a maximum of 17

[5] Latinos < Whites, Blacks

Table 2

Unadjusted Findings: Intensity of Utilization and Access in Previous 60 days, 3 Services, By Race/Ethnicity and for All

	Blacks		Whites		P Value	Latinos		Whites		P Value	All	
	Mean	SD	Mean	SD		Mean	SD	Mean	SD		Mean	SD
Intensity of Utilization: Number of Visits												
Psychiatric Outpatient	3.9	8.43	4.2	9.35	NS	3.7	9.40	4.2	9.35	NS	4.0	8.91
Housing	0.77	2.99	0.79	2.70	NS	0.76	3.72	0.79	2.70	NS	0.78	2.91
Case Management	3.0	6.20	2.5	5.25	<.001	3.9	8.52	2.5	5.25	<.001	2.9	5.97
Access: Probability of ≥ 1 Visit												
Psychiatric Outpatient	0.55	0.50	0.52	0.50	0.010	0.50	0.50	0.52	0.50	NS	0.53	0.50
Housing	0.27	0.44	0.28	0.45	NS	0.22	0.42	0.28	0.45	0.013	0.48	0.50
Case Management	0.52	0.50	0.44	0.50	<.001	0.47	0.50	0.44	0.50	NS	0.27	0.45

Table 3

Disparities in Intensity of Utilization and Access in Previous 60 days, 3 Services, by Racial and Ethnic Cohort

	Whites minus Blacks	Whites minus Latinos
Disparities in Intensity of Utilization: Number of Visits, Mean Difference [95% CI]		
Psychiatric Outpatient	0.46 [0.10, 0.81][1]	0.82 [−0.06, 1.82]
Housing	−0.01 [−0.06, 0.04]	0.10 [−0.04, 0.22]
Case Management	−0.03 [−0.23, 0.16]	−0.51 [−1.03, −0.05][1]
Disparities in Access: Probability of ≥ 1 Visit, Mean Difference (95% CI)		
Psychiatric Outpatient	−0.00 [−0.03, 0.02]	− 0.01 [−0.07, 0.04]
Housing	0.00 [−0.02, 0.02]	0.03 [−0.02, 0.07]
Case Management	0.01 [−0.01, 0.03]	− 0.00 [−0.05, 0.04]

[1] P value < 0.05