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ORIGINAL RESEARCH

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Utilization patterns of substance abuse and mental health resources at an urban VA hospital

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ABSTRACT

Background: Over 10% of the 610,000 homeless persons in the United States are veterans. Homelessness is associated with more substance abuse and mental health diagnoses, and higher hospitalization rates. We assessed the mental health (MH) and substance abuse (SA) burden and use of outpatient MH and SA resources in a homeless veteran population.

Methods: Electronic medical record data were obtained on all homeless patient aligned clinic team (HPACT) and non-homeless patients during fiscal years 2016 and 2017. MH and SA prevalence and related outpatient resource use were compared in three sub-populations: HPACT patients, non-HPACT patients with a homelessness ICD-10 code, and non-homeless PACT patients. Chi-square analyses and *t*-testing were performed to identify between-group differences during the fiscal year 2018.

Results: HPACT and homeless, non-HPACT patients had higher MH and SA disorder prevalence, and MH/SA comorbidity in both years ($p < 0.001$) with few significant changes from year 1 to year 2. PTSD clinic utilization among patients with PTSD increased from year 1 to year 2 for HPACT, non-HPACT homeless, and non-homeless patients (25% *vs.* 4%, 25.9% *vs*. 16.7%, 34% *vs.* 25.2%, $p < 0.01$) with the greatest improvement among HPACT patients. Overall, outpatient MH service use increased from year 1 to year 2, among patients with an MH diagnosis (77.3% *vs.* 44.3%, 82.7% *vs*. 54.2%, 69% *vs.* 51.4%, $p < 0.001$), with greater improvement in the HPACT and non-HPACT homeless patients. For those with an SA diagnosis, outpatient utilization rates doubled (52.5% *vs.* 27%, 57.5% *vs.* 27.7%, 35.2% *vs.* 17.9%, $p < 0.001$). HPACT and non-HPACT homeless patients were more likely to have a psychiatric hospitalization in years 1 and 2 compared with non-homeless patients (5.8%/6.1% *vs.* 6.7%/4.9% *vs.* 1.1%/1%, $p < 0.001$). There was no change in psychiatric hospitalization rates from year 1 to year 2.

Conclusions: More research on MH and SA treatment strategies is needed to address the significant disease burden among homeless veterans.

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Substance abuse; mental health; veterans; homeless

Background

The prevalence of having a mental health (MH) disorder among adults ≥18 in the general population is 18.1% and the substance abuse (SA) prevalence in this population is 8.4% [1]. The 2011 USA National Survey on Drug Use and Health found that 17.5% of adults with a mental illness had a co-occurring substance use disorder [2]. The US veteran population has disproportionately high rates of MH and SA disorders. One study found that about 25% of VA patients had at least one MH or SA disorder [3]. Another study found that among veterans presenting for first-time care within the VA health care system, about 11% meet criteria for a substance use disorder diagnosis [4].

Homelessness is associated with a higher MH and SA burden, as well as higher rates of emergency room use and hospitalizations [5,6]. The Substance Abuse and Mental Health Services Administration estimates that 38% of homeless individual have

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an alcohol dependence disorder and 26% have SA [7]. Alcohol abuse is more prevalent among older generations, while drug abuse is more common among homeless youth and younger adults [8]. Homelessness is also associated with increased risk of adverse sequelae of MH and SA like suicidal ideation, risky sexual behaviors, and violence against others [9–11].

Of the over 610,000 homeless individuals in the United States, approximately 10% are veterans [12]. A 2011 National survey of homeless veterans found that 31.3% of veterans with less than 2 years of homeless have a dual diagnosis, defined as having at least one MH diagnosis and one SA diagnosis [13]. That number increases by 50% among veterans who have been homeless for more than 2 years. Homelessness among veterans has continued to increase, and veterans who are homeless tend to have a longer duration of homelessness compared with their non-veteran counterparts [13].

Dedication to advocacy on behalf of the veterans, who are most psychosocially vulnerable, inclusive of homeless veterans, is one of the VA's core values. The Homeless Patient Aligned Clinic Team (HPACT) model was initiated in 2011 and is designed to provide comprehensive services to homeless veterans. Veterans can walk into H-PACT clinics without an appointment and receive medical care, case management services, housing placement supports, SA and MH treatment, and community referrals when appropriate.

The Veterans Health Administration (VHA) has made the expansion of rapid access to behavioral health resources for veterans a major priority. However, there is a dearth of research that examines the uptake of these resources among veterans with housing insecurity. The purpose of our study is to assess current outpatient MH and SA resource utilization patterns in a population of homeless veterans who receive care at an urban VHA site compared to non-homeless veterans. We explore whether homeless veterans who receive care in the HPACT model clinics use outpatient MH and SA resources differently compared with non-HPACT homeless veterans and whether these two populations differ in MH and SA outpatient resource use from non-homeless veterans.

Methods

HPACT clinic

Patients are referred to HPACT by a VA primary care provider based on the perception of need. They may be also referred through other programs serving homeless veterans such as the Health Care for Homeless Veterans and the HUD-VASH programs. HUD-VASH is a partnership between the Department of Housing and Urban Development (HUD) and the Department of Veterans Affairs that was established to provide supported housing and case management for high risk veterans. This population often includes those with an MH or SA diagnosis for whom affordable housing is hard to find. Veterans may also choose to self-refer and receive their primary care through the HPACT program.

Data collection

Data were obtained from the VHA Corporate Data Warehouse in collaboration with the data analytics team on all patients who were seen in the HPACT team clinic from Fiscal years 2016 and 2017. Data were also collected from patients who were assigned to the non-homeless PACT teams during the same two time periods for comparison. Preliminary data were then validated via chart review of a random sampling of patient records. MH and SA diagnoses were identified in our patient cohort using all relevant groups of ICD-10 codes. To be included in the analysis, a veteran was required to have been assigned to one of the primary care PACT teams, and have had at least one PACT team clinic visit at the VHA medical center within the previous 12 months. Veterans who were unassigned to a PACT team did not have at least one visit in the previous 12 months or received only inpatient services or specialty clinic services were excluded from analysis. Individuals whose only visits were for ancillary services such as vaccinations, blood pressure checks, pharmacy management, or consultation for services like the supplemental nutrition assistance program or supportive housing were also excluded. This project was classified as quality improvement per the VA institutional guidelines.

Data analysis

We compared the prevalence of common MH and SA disorders in three sub-populations: HPACT team patients, non-HPACT team patients who were homeless as identified by the appropriate ICD-10 codes, and non-homeless PACT team patients in both groups. Poly-substance use and co-morbid disorder prevalence were also assessed in all three groups. We also evaluated the use of SA and MH resources as well as post-traumatic stress disorder (PTSD) clinic participation in the three groups. We

included both individual clinic appointments with any provider type, and integrated or support group visits for MH and SA. PTSD clinic use was assessed separately. Chi-square analyses with pairwise comparisons were performed to identify the difference between the three groups. The *t*-test was used to test for differences of the proportion of patient MH and SA diagnoses and resource utilization between FY2016 (year 1) and FY2017 (year 2). For the purposes of analysis, patients with schizophrenia, bipolar disorder, depression, anxiety, schizoaffective, and schizotypal disorder were characterized as having an MH disorder. Patients with opioid, cocaine, sedative, alcohol, or marijuana abuse diagnoses were characterized as having an SA disorder. Differences in tobacco use were also assessed. All analyses were conducted during FY2018.

Results

Demographic

FY2016 data from 260 HPACT, 1,391 homeless non-HPACT, and 13,902 non-homeless patients; and FY2017 data from 261 HPACT, 1,230 homeless non-HPACT, and 13,623 non-homeless patients were obtained. The sample size for each group was determined by the number of patients with at least one visit during the year of interest. Table 1 summarizes the demographic information for the three groups. Overall, HPACT and non-homeless patients were younger than housed patients and were more likely to self-identify as African–American.

Disease prevalence

Overall HPACT patients and homeless, non-HPACT patients had higher rates of MH and SA disorders, co-morbid MH, and SA in both years ($p < 0.001$) with few significant changes in prevalence from year 1 to year 2. During year 2, there were no significant differences between HPACT patients and homeless, non-HPACT patients in rates of MH and SA disorders except for tobacco use, PTSD, and schizophrenia. HPACT patients had the highest prevalence of tobacco use compared with both homeless non-HPACT patients and non-homeless patients in both years (47.3%/47.5% *vs.* 40.6%/37.6% *vs.* 22.5%/18.2%, $p < 0.001$). PTSD prevalence was the highest among non-HPACT homeless patients (26.3%, $p < 0.05$) and schizophrenia prevalence was the highest in HPACT patients (9.2%, $p < 0.05$). Table 2 summarizes prevalence data for specific diagnoses.

Utilization of clinical resources

Utilization of PTSD clinic among patients with PTSD increased significantly from year 1 to year 2 for HPACT patients, non-HPACT homeless, and non-homeless patients (25% *vs*. 4%, 25.9% *vs*. 16.7%, 34% *vs*. 25.2%, $p < 0.01$) with the greatest improvement in the HPACT clinic group. There was an increase in use of MH services from year 1 and year 2, among patients with an MH diagnosis, in all three groups (77.3% *vs*. 44.3%, 82.7% *vs*. 54.2%, 69% *vs*. 51.4%, $p < 0.001$) with greater improvement noted in the HPACT and non-HPACT homeless patients. For those with an SA diagnosis, the utilization rates approximately doubled in all three groups (52.5% *vs*. 27%, 57.5% *vs*. 27.7%, 35.2% *vs*. 17.9%, $p < 0.001$). HPACT patients were the least likely to use Primary Care Mental Health Integration (PCMHI) resources compared with the other two groups; and there were no significant changes in PCMHI use from year 1 to year 2 in any of the three groups. HPACT and non-HPACT homeless patients were more likely to have had a psychiatric hospitalization in years 1 and 2, compared with non-homeless patients (5.8%/6.1% *vs*. 6.7%/4.9% *vs*. 1.1%/1%, $p < 0.001$). There was no change in prevalence of psychiatric hospitalization from year 1 to year 2 (all $p > 0.05$). Table 3 outlines the use of outpatient MH and SA resources.

Discussion

Our findings highlight a higher burden of MH diagnoses such as depression, schizophrenia; and PTSD and SA disorders such as cocaine, opioid, and marijuana in our two homeless veteran populations compared with housed veterans. Our study also demonstrates a trend of increased uptake of MH and SA resources among patients with a diagnosis which was consistent across the three sub-groups of veterans with the largest increases in the two populations of homeless veterans. However, there was no change in the rates of psychiatric hospitalizations. Finally, we note that the demographic data and distribution of disease burden were similar among HPACT and non-HPACT homeless patients except for PTSD and tobacco use.

HPACT and non-HPACT homeless patients had a similar prevalence of MH disorders including depression, anxiety, schizophrenia, and bipolar disorder, as well as SA disorders such as alcohol abuse disorder, opioid abuse, and cocaine abuse. These findings may be explained by the fact that both groups of homeless veterans are from the

Table 1. Patient demographics.

Variable	FY 2015–2016	FY2016–2017	*p*-value
HPACT[a]	***N* = 260**	***N* = 261**	
Mean age	52.5 (SD 12.66)	52.5 (SD 12.12)	1.000
Gender			
Male	92.7 % (*n* = 241)	92.3% (*n* = 241)	0.878
Female	7.3% (*n* = 19)	7.7% (*n* = 20)	
Race			
White	19.2% (*n* = 50)	18.4% (*n* = 48)	0.940
Black	66.5% (*n* = 173)	69.3% (*n* = 181)	
Asian	0.8% (*n* = 2)	0.4% (*n* = 1)	
Hawaiian/Pacific Islander	0.4% (*n* = 1)	0.4% (*n* = 1)	
AI/NA[c]	1.1% (*n* = 3)	1.9% (*n* = 5)	
Unknown	11.9% (*n* = 31)	9.6% (*n*=25)	
Hispanic/Latino ethnicity			
Yes	23.8% (*n* = 62)	21.1% (*n* = 55)	0.805
No	74.2% (*n* = 193)	77.4% (*n* = 202)	
Unknown	2% (*n* = 5)	1.5% (*n* = 4)	
Co-pay exempt			
Yes	99.2% (*n* = 258)	99.2% (*n* = 259)	1.000
No	0.08% (n=2)	0.08% (n=2)	
Non-HPACT homeless	***N* = 1391**	***N* = 1230**	
Mean age	53.2 (SD 13.82)	53.9 (SD 14.16)	0.201
Gender			
Male	88.2% (*n* = 1227)	88.7% (*n* = 1091)	0.696
Female	11.8% (*n* = 164)	11.3% (*n* = 139)	
Race			
White	23.9% (*n* = 332)	24.3% (*n* = 299)	0.303
Black	65.4% (*n* = 909)	62.9% (*n* = 774)	
Asian	0.6% (*n* = 9)	0.6% (*n* = 7)	
Hawaiian/Pacific Islander	1.0% (*n* = 14)	0.7% (*n* = 8)	
AI/NA[c]	0.4% (*n* = 6)	0.3% (*n* = 4)	
Unknown	8.6% (*n* = 120)	11.2% (*n* = 138)	
Hispanic/Latino ethnicity			
Yes	27.4% (*n* = 381)	28.9% (*n* = 355)	0.269
No	71.5% (*n* = 994)	69.2% (*n* = 851)	
Unknown	1.1% (*n* = 15)	2.0% (*n* = 24)	
Co-pay exempt			
Yes	98.9%	99%	0.803
No	1.1%	1%	
Non-homeless	***N* = 13902**	***N* = 13623**	
Mean age	62.8 (SD 18.35)	62.2 (SD 18.34)	0.007
Gender			
Male	91.7% (*n* = 12748)	91.3% (*n* = 12442)	0.273
Female	8.3% (*n* = 1154)	8.7% (*n* = 1181)	
Race			
White	43.4% (*n* = 6039)	42.2% (*n* = 5748)	0.053
Black	41.1% (*n* = 5711)	41.8% (*n* = 5688)	
Asian	1.3% (*n* = 174)	1.2% (*n* = 168)	
Hawaiian/Pacific Islander	1.1% (*n* = 149)	0.9% (*n* = 127)	
AI/NA[c]	0.5% (*n* = 64)	0.5% (*n* = 64)	
Unknown	12.7% (*n* = 1764)	13.4% (*n* = 1828)	
Hispanic/Latino ethnicity			
Yes	26.3% (*n* = 3650)	26.4% (*n* = 3597)	0.421
No	70.1% (*n* = 9739)	69.8% (*n* = 9515)	
Unknown	3.7% (*n* = 512)	3.8% (*n* = 511)	
Co-pay exempt			
Yes	98.3%	97.8%	0.003
No	1.7%	2.2%	

[a]HPACT = Homeless Patient Aligned Clinic Team; [b]PACT = Patient Aligned Clinic Team; [c]American Indian/Native American

Table 2. Mental health and substance abuse prevalence.

	FY2016 (HPACT: N = 260, Non-HPACT homeless: N = 1391, Housed: N =13902)	FY2017 (HPACT: N = 261, Non-HPACT homeless: N = 1230, Housed: N = 13623)	ΔFY2016–FY2017 (p-value)
Mental health disorder prevalence			
PTSD[a]			
HPACT	19.2%	19.2%	0.999
Non-HPACT homeless	27.6%	26.3%	0.454
Housed	16.3%	16.1%	0.652
p-value	<0.001	<0.001	
Depressive disorder			
HPACT	30%	28.7%	0.745
Non-HPACT homeless	33%	29.9%	0.088
Housed	17.7%	13.2%	<0.001
p-value	<0.001	<0.001	
Anxiety disorder			
HPACT	10.8%	7.3%	0.164
Non-HPACT homeless	12.2%	10.7%	0.493
Housed	7.7%	6.8%	0.004
p-value	<0.001	<0.001	
Bipolar disorder			
HPACT	6.2%	5%	0.552
Non-HPACT homeless	7.6%	7.5%	0.999
Housed	3.2%	2.3%	<0.001
p-value	<0.001	<0.001	
Schizophrenia			
HPACT	6.2%	9.2%	0.199
Non-HPACT homeless	5.7%	5.2%	0.574
Housed	1.9%	1.8%	0.538
p-value	<0.001	<0.001	
Schizoaffective disorder			
HPACT	5%	4.3%	0.663
Non-HPACT homeless	4.7%	4.2%	0.623
Housed	1.8%	1.2%	<0.001
p-value	<0.001	<0.001	
Schizotypal disorder			
HPACT	0.8%	0.4%	0.555
Non-HPACT homeless	1%	0.8%	0.590
Housed	0.4%	0.2%	0.003
p-value	0.001	<0.001	
Substance abuse disorder prevalence			
Opioid abuse/dependence			
HPACT	7.7%	8.4%	0.769
Non-HPACT homeless	9.3%	8.3%	0.368
Housed	2.8%	2.0%	<0.001
p-value	<0.001	<0.001	
Cocaine abuse/dependence			
HPACT	14.6%	13.8%	0.794
Non-HPACT homeless	14.4%	12.8%	0.234
Housed	4.5%	2.6%	<0.001
p-value	<0.001	<0.001	
Alcohol abuse/dependence			
HPACT	23.8%	24.1%	0.936
Non-HPACT homeless	22.2%	19.8%	0.133
Housed	10.3%	7.0%	<0.001
p-value	<0.001	<0.001	
Marijuana abuse/dependence			
HPACT	10.4%	8.0%	0.344
Non-HPACT homeless	9.5%	8.6%	0.424
Housed	3.7%	2.7%	<0.001
p-value	<0.001	<0.001	
Sedative abuse/dependence			
HPACT	1.5%	1.5%	0.999

(Continued)

	FY2016 (HPACT: N = 260, Non-HPACT homeless: N = 1391, Housed: N =13902)	FY2017 (HPACT: N = 261, Non-HPACT homeless: N = 1230, Housed: N = 13623)	ΔFY2016–FY2017 (p-value)
Non-HPACT homeless	1.3%	0.9%	0.330
Housed	0.4%	0.2%	0.003
p-value	<0.001	<0.001	
Tobacco use/dependence			
HPACT	47.3%	47.5%	0.967
Non-HPACT homeless	40.6%	37.6%	0.117
Housed	22.5%	18.2%	<0.001
p-value	<0.001	<0.001	
Comorbid disorder prevalence			
≥ One substance abuse disorder			
HPACT	34.2%	34.5%	0.943
Non-HPACT homeless	34.4%	32.8%	0.387
Housed	14.8%	11.0%	<0.001
p-value	$p < 0.001$	<0.001	
> One mental health disorder[b]			
HPACT	10.4%	10.4%	0.999
Non-HPACT homeless	14.1%	10.5%	0.005
Housed	4.9%	4.1%	0.002
p-value	$p < 0.001$	<0.001	
≥ One mental health disorder[b]			
HPACT	46.9%	44.1%	0.522
Non-HPACT homeless	56.9%	46.6%	< 0.001
Housed	22.4%	21.2%	0.016
p-value	$p < 0.001$	<0.001	
Mental health and substance use disorder[b]			
HPACT	26.5%	23.8%	0.478
Non-HPACT homeless	23.3%	21.2%	0.198
Housed	8.5%	5.4%	<0.001
p-value	$p < 0.001$	<0.001	
Mental health and tobacco use disorder[b]			
HPACT	9.6%	24.1%	<0.001
Non-HPACT homeless	20.8%	18.8%	0.094
Housed	8.1%	5.5%	<0.001
p-value	$p < 0.001$	<0.001	
Patients with PTSD who use tobacco			
HPACT	52%	60%	0.423
Non-HPACT homeless	40.6%	38.6%	0.588
Housed	19.8%	23.1%	0.007
p-value	$p < 0.001$	<0.001	

[a]PTSD = post traumatic stress disorder. [b]Excludes PTSD

same higher risk pool but were connected to VHA care via different mechanisms. A disproportionate burden of MH and SA in our two homeless veteran populations compared with housed veterans, as evidenced in our study, is consistent with prior research that highlight disparities in homeless individuals and those who are veterans when compared to the general adult population. A recent study comparing the primary care experiences of homeless and non-homeless veterans found higher rates of MH and SA disorders as well as co-occurrence [14].

The overall increased uptake of MH and SA resources is of great significance because it has the potential to reduce hospitalizations. Research shows that homeless veterans who received population-tailored primary care used less acute care and that costs were lower [15]. Behavioral health access is an important component of primary care for this population. Current research supports the expanded availability of community-based outpatient MH services as a strategy for reducing psychiatric hospitalizations [16]. Furthermore, timely outpatient follow-up can reduce re-admission rates in patients with a serious mental illness [17]. For SA treatment, outpatient management is also effective for many patients. Several randomized trials comparing intensive outpatient programs with inpatient SA care demonstrate comparable reductions in drug and alcohol use [18].

Table 3. Mental health and substance abuse service utilization FY2016–FY2017.

	FY2016 (HPACT: *N* = 260, Non-HPACT homeless: *N* = 1391, Housed: *N*=13902)	FY2017 (HPACT: *N* = 261, Non-HPACT homeless: *N* = 1230, Housed: *N*=13623)	ΔFY2016–FY2017 (*p*-value)
PTSD patients seen in PSTD clinic			
HPACT	4%	25%	0.003
Non-HPACT homeless	16.7%	25.9%	0.003
Housed	25.2%	34%	< 0.001
p-value	$p < 0.001$	$p = 0.002$	
Substance abuse patients receiving services			
HPACT	27%	52.2%	< 0.001
Non-HPACT homeless	27.7%	57.5%	< 0.001
Housed	17.9%	35.3%	< 0.001
p-value	$p < 0.001$	< 0.001	
Mental health patients receiving services[c]			
HPACT	44.3%	77.3%	< 0.001
Non-HPACT homeless	54.2%	82.7%	< 0.001
Housed	51.4%	69%	< 0.001
p-value	$p = 0.102$	< 0.001	
Patients receiving PCMHI[b] services			
HPACT	5.8%	4.6%	0.372
Non-HPACT homeless	13.1%	11.7%	0.279
Housed	10%	7.6%	< 0.001[a]
p-value	$p < 0.001$	< 0.001	
Psychiatric hospitalization in the past year			
HPACT	5.8%	6.1%	0.885
Non-HPACT homeless	6.7%	4.1%	0.885
Housed	1.1%	1%	0.416
p-value	$p < 0.001$	< 0.001	

[a]Represents the *p*-value for decrease from year 1 to year 2. [b]PCMHI = primary care mental health integration. [c]Excludes PTSD

Our data did not show a change in psychiatric hospitalizations from FY2016 to FY2017 in any of the three groups which is unlike previous literature. Potential reasons for this could be a change in severity of illness from year 1 to year 2, or transient changes in the availability of psychiatric inpatient beds affecting admission practices, that were not captured by our data parameters. Given that we were unable to assess psychiatric emergency room use, which usually precedes hospitalizations, further research should look into if the increase in outpatient resources use is associated with a comparable decrease in emergency room visits in this patient population.

Our work highlighted some differences in clinic utilization patterns between the two groups. Non-HPACT homeless patients had higher rates of Primary Care Mental Health Integration use in both fiscal years compared with HPACT patients. One possible explanation is that the HPACT clinic location is separate from the other PACT teams and further away from the PCMHI providers who are co-located with the other PACT teams, which may have translated to differences in perceived accessibility by patients.

Among non-HPACT homeless patients, PTSD clinic utilization rate was in between that of HPACT patients and housed patients; and location may also have impacted these results. It is possible that the location of the PTSD clinic in relation to where the veterans received their primary care clinic visits may have impacted their perceptions of accessibility. Since the PTSD clinic is closer in location to the non-homeless PACT team clinics, non-homeless veterans may have been more likely to attend the PTSD clinic at baseline.

Research shows that the co-location of veterans' health services is associated with better chronic disease management among those with a mental health illness [19]. Furthermore, the co-location of resources that can help address patients' social determinants of health can also be beneficial to health outcomes in this population. This model of co-location of resources is currently being implemented to provide comprehensive care to other vulnerable and medically underserved populations in similar, urban environments [20].

In addition, an exploration into models for minimizing the wait times for homeless veterans to access outpatient MH and SA counseling when a

need is identified during a primary care visit; is warranted. The VHA's PCMHI integrates MH staff into each PACT team which allows patients to access services for depression, anxiety, PTSD, and substance use without a separate consult with MH providers outside of the PACT clinic area. Interventions are brief and veterans have the option to continue with follow-up or be referred to additional MH and SA services when appropriate.

Many homeless veterans experience financial and transportation challenges to accessing health care [21]. Therefore, a targeted expansion of this model to provide same-day access to a wider scope of MH and SA treatment could provide additional benefits including increased use of outpatient MH and SA resources, a decrease in emergency room visits and hospitalizations, decrease systems costs, and improve the quality of care that is received.

Our study has several limitations. First, the transient nature of the homeless patient population makes it challenging to accurately assess the number of patients seen in the HPACT clinic at a given time. Second, the analyses did not consider the length of time of the patients' diagnoses or frequency of provider updates to the patients' problem list or diagnoses in the electronic medical records. Third, we were unable to accurately assess polysubstance abuse due to limitations in data extraction techniques. Finally, the patients were not stratified on whether treatment occurred in individual or group settings. Therefore, it is unclear which treatment setting would be the most beneficial for our patient population.

Conclusions

Homeless veterans with MH and SA illnesses represent one of the most vulnerable and disadvantaged segments in the United States and, therefore, should be a major healthcare priority. Exploration of system-wide barriers to the utilization of resources in the VA would be beneficial in improving the overall quality of MH and SA treatment. Future quality improvement projects focusing on demographic risk factors such as race, ethnicity, and employment status; and their relationship to resources utilization may identify novel intervention strategies to address the needs of this unique population. Additional interventions should focus on increasing patient self-efficacy to use outpatient MH and SA resources including the VHA system's specialty services like PTSD clinic, and developing standard operating procedures to improve co-location of services for patients served by the institution's HPACT clinic.

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