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Moving Beyond Housing: Service Implications for Veterans Entering Permanent Supportive Housing

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Abstract

As a result of efforts to end homelessness among U.S. veterans, more former service members are entering permanent supportive housing (PSH). While PSH has been successfully used to house homeless veterans, more research is needed about services beyond housing placement and retention. This study uses the Gelberg–Andersen behavioral model for vulnerable populations to determine associations between predisposing, enabling, and need characteristics and recent service use (i.e., services to satisfy basic needs, occupational development, financial, healthcare, mental health) among unaccompanied homeless veterans (N = 126) entering PSH in Los Angeles. Among the significant findings, as indicated using univariable logistic regression models, were veterans who had incarceration histories were more likely to utilize basic needs services, compared to those without incarceration histories. Veterans who received an honorable discharge were more likely to utilize occupational development services, compared to veterans with other discharge statuses. Veterans who had a case manager were more likely to utilize mental health services than those without a case manager, while those who received social security were less likely to utilize mental health services compared to veterans who did not receive social security. Veterans who met criteria for a psychological disability and veterans who met criteria for probable PTSD were more likely to use basic needs services and mental health services than veterans who fell below these thresholds. Clinical implications for social workers including "equal access to services," "enhancing economic stability," "providing safe and affordable housing with trauma-informed services," and "training service social workers to deliver well-informed linkages and services" are discussed.

Keywords Homelessness · Veterans · Service implications · Service utilization · Housing

Introduction

As a result of efforts to end homelessness among U.S. veterans, more former service members are entering permanent supportive housing (PSH; National Alliance to End Homelessness 2015). PSH is an affordable solution to ending homelessness through rapid housing and provision of ongoing supportive services to meet the needs of formerly homeless residents (Tsemberis 2010). PSH has the demonstrated ability to successfully house homeless veterans (Mares et al. 2004; Montgomery et al. 2013), including those with substance use problems (O'Connell et al. 2012; Tsai et al. 2014), severe mental illness (Mares et al. 2004), and without previous residential treatment (Mares et al. 2004).

Less attention, however, has been given to the clinical implications for services within PSH that extend beyond housing placement, including the unique characteristics of veterans that may affect service use, service provision, and subsequently housing retention. Given the increasing number of social workers providing services and linkages to veterans entering or living in PSH settings (Bratcher et al. 2015), research that elucidates the current state of service utilization among homeless veterans entering PSH is warranted. Providing social workers with information on the correlates of service utilization among this population aligns

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with the core social work value of service, as well as with social workers' responsibility to the profession to make services available and educate themselves to incorporate diversity in service delivery (Banks 2012). To provide recommendations for services within PSH, an understanding is needed of the individual (e.g., race, military experience, gender, health conditions) and system-level (e.g., public benefits, informational support, income) characteristics that enable or inhibit veterans' utilization of necessary services (Lindamer et al. 2012). These factors are complex and comorbid (Wenzel et al. 1995) and can be particularly challenging for social workers to assess among homeless persons, given their enhanced vulnerability (Stein et al. 2000).

Aside from research into placement and retention, findings that provide clinical implications for PSH on issues other than housing are rather minimal; however, several studies have provided preliminary insight into characteristics of veterans that deserve attention in PSH services. Research thus far on homeless veterans in supportive housing has largely drawn from administrative data from a collaborative program of the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Veterans Affairs (VA) referred to as the HUD–VA Supportive Housing (HUD–VASH) program (U.S. Department of Veterans Affairs 2016). To be enrolled in HUD–VASH veterans must meet the definition of being a veteran or someone who "served in the active military, naval, or air service and who was discharged or released therefrom under conditions other than dishonorable." Additionally, veterans must meet the definition of homelessness according to the McKinney-Vento Homeless Assistance Act (e.g., individual or family who lacks adequate nighttime residence, living in a shelter or place not meant for habitation, imminently at risk of losing housing; Berg 2013); and not be a sex offender (U.S. Department of Veterans Affairs 2016). In this program, homeless veterans participate in case management and utilize supportive services prior to and following entry into housing, which is facilitated by rental assistance to aid them in securing and retaining a permanent residence.

The HUD–VASH program has demonstrated improved health, quality of life, income, employment, substance use-associated problems, criminal activity, and social support outcomes for veterans (O'Connell et al. 2009), but the effects of this program may vary across other characteristics. For example, African Americans enrolled in the HUD–VASH program which entailed assertive community treatment, an apartment voucher, and community based-care, showed greater reductions in substance use, hospitalizations, and reported significantly improved quality of life following housing than did Caucasian veterans enrolled in the HUD–VASH program, when compared to those receiving treatment as usual (i.e., brokered case management, referrals to health services; O'Connell et al.

2009). However, Caucasians showed greater improvement in number of days homeless (i.e., time from homelessness to entering housing following enrollment in the HUD–VASH program; O'Connell et al. 2012). Several studies have used HUD–VASH data to explore predictors and outcomes to identify changes following entry into supported housing programs for veterans, with mixed findings (O'Connell et al. 2009, 2012, 2013; Montgomery et al. 2013; Tsai et al. 2014). Two of these studies focused on substance use and abuse changes (O'Connell et al. 2013; Tsai et al. 2014) and found that veterans with alcohol or substance use disorders demonstrated more problems with substance use after being housed (Tsai et al. 2014; O'Connell et al. 2013) and experienced more days homeless and more days intoxicated in the 90 days prior to entering housing (O'Connell et al. 2013) compared to those without substance use problems at entry. However, substance users also reported improved health, quality of life, and social support compared to nonusers (O'Connell et al. 2013). Studies not specific to substance users found that HUD–VASH participants had improved mental health status and reduced inpatient mental health care utilization (O'Connell et al. 2009; Montgomery et al. 2013). Given the literature that suggests veterans possess unique characteristics that result in varying levels of success in PSH, an understanding of these characteristics is needed to improve social workers' service delivery repertoire and maximize positive outcomes for all veterans.

Using the Gelberg–Andersen behavioral model for vulnerable populations is an ideal approach to understanding health services utilization among vulnerable groups such as homeless veterans. This model examines the relationship among predisposing (i.e., those that exist prior to contracting disease, such as demographic characteristics), enabling (i.e., those that facilitate or hinder access to services, such as income), and need (i.e., those that represent health disabilities) characteristics (Stein et al. 2012). Additionally, characteristics specific to vulnerable communities such as those experiencing homelessness (e.g., homelessness histories, substance use, mental health conditions) are included in this model to explain service utilization (Stein et al. 2007). Using this approach can be especially helpful in identifying the unique challenges this particular population faces in accessing necessary services, in addition to providing insight into ways of promoting health and well-being (Gelberg et al. 2000).

This study explored the prevalence of predisposing (e.g., race, homelessness history, gender, military history), enabling (e.g., social support, case management, income), and need (e.g., mental health, physical health, sex risk behavior, substance use conditions) characteristics associated with service use in a sample of homeless veterans entering PSH in Los Angeles. Not all veterans in this sample were recipients of HUD–VASH, creating a unique opportunity to examine

homeless veteran characteristics and service outcomes not specific to the VA. For the purposes of this study, anyone who served in the United States military, regardless of their discharge status is considered a veteran. Using our findings as a guide, we also make clinical service recommendations for social workers serving these veterans in PSH. An improved understanding of these characteristics and recommendations may offer social workers an enhanced opportunity to improve supportive services and thus improve the lives of the veterans they serve.

Methods

The present study used data from veterans ($N = 126$) who participated in a larger study as part of a cohort of 421 homeless adults who moved into PSH in Los Angeles between August 2014 and January 2016. The research team partnered with 26 housing providers in Los Angeles to recruit participants moving into housing (August 2014 to January 2016) via phone referrals and lease-up events. Participants were eligible for the longitudinal study if they were 39 years old or older (turning 40 during the year of participation in the study), spoke English or Spanish, and were currently homeless unaccompanied adults (without minor children). Participants may have been housed through the HUD–VASH program or another subsidized housing program as long as they met an additional eligibility criterion, which was confirmation by agency personnel that the participant moved into PSH within 20 miles of downtown Los Angeles. Given the prevalence of homeless persons entering PSH in Long Beach, a city in Los Angeles County, an exception was made to include participants moving into this geographic region if it exceeded the 20-mile radius. All participants were screened for eligibility via phone or in person. Respondents who endorsed military service were included in this redacted sample with the exception of two participants who reported service outside of the U.S. military and were subsequently excluded. Two veterans declined to complete the social network interview and thus are missing from social network results.

Prior to participating in assessments conducted by trained interviewers using iPads, all participants completed the informed consent process. Four interviewer-administered questionnaires and social network interviews (SNIs) were conducted with study participants: baseline (prior to move in) and 3, 6, and 12 months following their move-in date. However, this study used data solely from the baseline assessment. Information was collected related to participants' demographic characteristics, military service, homelessness histories, sex risk behavior, and health and mental health conditions and symptoms. The SNI asked participants to identify any individuals they interacted with during the

previous 3 months. Demographic information was collected for all nominated individuals, referred to as "network members" for the purposes of this paper, as was characteristic information regarding participants' relationship with these network members. Qualtrics survey software was used to collect participant questionnaire responses electronically. SNI data were collected via an iPad app designed by the original study team (Rice 2011). All methods were approved by the University of Southern California Institutional Review Board. Additionally, the study received a Certificate of Confidentiality from the National Institutes of Health to protect participant data from subpoena.

Measures

Predisposing Characteristics

All measures were developed by the original study's research team or adapted from other measures and aligned with the Gelberg–Andersen model (Stein et al. 2000). Measures of predisposing characteristics were age, race, ethnicity, gender, education, military discharge status, combat experience, service era, length of time spent homeless, place of residence prior to entering PSH, and criminal history. Race categories consisted of Black or African American, White (European American or Anglo), Native American or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and multiracial or mixed race; the ethnicity measure indicated whether the participant identified as Hispanic or Latino (Wenzel 2005). These variables were then combined to create a streamlined race and ethnicity variable that included an additional category of Hispanic or Latino only. For purposes of analyses a redacted version of this measure was created with Black, Latino/Other/Multiracial, and White racial categories. Participants were asked about their gender, with response options being male, female, male-to-female transgender, and female-to-male transgender. There were no veterans who identified as transgender in this study. The education measure assessed participants' highest level of education, which included all grade levels and post-high school education levels (California Health Interview Survey 2011). An indicator of those who completed high school versus those who did not was created for analytic purposes.

Veterans were asked to state the years in which they served (if a respondent could not remember the exact years, they were asked to instead provide the era(s) of service), their exposure to combat (Green et al. 2013), and their discharge status (University of Southern California 2015). Due to distribution of the years and era variables this measure was reported descriptively, but not examined in statistical tests. Those with honorable/generable discharge statuses were compared to veterans with any discharge status other than honorable. Veterans with combat experience were

compared to those without combat experience. Respondents reported the total length of time they experienced literal homelessness (Wenzel 2009) in their lifetime (years) as well as their number of days of literal homelessness in the past 3 months (Tsemberis et al. 2007; Wenzel 2009). Criminal activity was assessed using several measures that inquired about participants' lifetime arrest history (North Carolina Population Center 2009); whether they had ever been on probation for an offense (North Carolina Population Center 2009); whether they had ever spent time in jail, prison, or a correctional facility (North Carolina Population Center 2009); and whether or not they went to jail while they were homeless (Rice 2011).

Enabling Characteristics

Participants were asked about the total income they received during the previous 30 days using an item adopted from a previous study (Wenzel 2005). For the purposes of analyses, the average income among the sample was used to create a binary indicator of average income or more versus income lower than the average. An employment item inquired about any part-time or full-time work during the previous 3 months (Green et al. 2013). Another item assessed whether or not the participant owned a cell phone during the previous 3 months. If so, a follow-up question determined if the cell phone was a smartphone (Duggan and Smith 2013). Participants were asked if they had a case manager and how many times they met with their case manager in the previous 3 months via an item adopted from the HIV Cost and Services Utilization Study (RAND Corporation 2000). Using the average number of times the sample met with their case managers, a binary indicator was created (average versus below average). An item adapted from the California Health Interview Survey (2011) asked participants which public benefits they received during the past 30 days: food stamps (e.g., Supplemental Nutrition Assistance Program), supplemental security income or disability pension, social security or pension payments, VA benefits, and/or General Relief.

In the SNI, participants nominated people with whom they had interacted during the previous 3 months. Participants were then asked to describe their relationship with each network member (e.g., relative, provider, street peer). Participants were also asked which network members they felt emotionally close to, who provided them with tangible goods (e.g., food, money, clothes, place to stay), who gave them advice or information, who they could confide in, who they could borrow $100 from, and who they had conflict with during the previous 3 months. These items were adopted from prior studies (Green et al. 2013; Rhoades et al. 2011; Rice 2011; Tucker et al. 2009) and were categorized into indicators of no network members with a given relationship/characteristic/support provider, 1 network member, and

2 or more network members. For example, categories for advice-giving network members were 0, 1, and 2 or more.

Need Characteristics

With an item adopted from the National Health Interview Survey (Parsons et al. 2014) and response options informed by prior literature (Bassuk et al. 1998; Hwang 2001; National Health Care for the Homeless Council 2011), participants were asked about their histories of diagnosed chronic physical and mental health conditions (e.g., diabetes, cancer, arthritis, anemia, schizophrenia, major depressive disorder, bipolar disorder). An "other" response option was included; these responses were recoded into the preexisting categories and also yielded several new response options in addition to the endorsement of being HIV positive or positive for a sexually transmitted infection (STI; i.e., Syphilis, Gonorrhea, Hepatitis B, Hepatitis C, HPV, and/or Chlamydia), which drew from separate items in the questionnaire. Participants completed the 14-item Modified Colorado Symptom Index (Conrad et al. 2001) to assess their overall psychological functioning during the previous month. A cutoff score of 16 was used to determine whether veterans scored above or below the indicator of psychiatric disability (Boothroyd and Chen 2008). Additionally, participants completed the 4-item Primary Care PTSD Screen to assess for past-month posttraumatic stress disorder (PTSD) symptoms; a score of 3 or higher indicated symptoms indicative of PTSD (Prins et al. 2003).

Risk behavior items assessed participants' substance use and risky sexual practices. Using items adapted from the NIDA-Modified ASSIST (National Institute on Drug Abuse 2012), the survey assessed participants' use of tobacco during the previous 3 months. Additionally, the measure inquired about cocaine, methamphetamine, hallucinogens, street opioids (i.e., heroin, opium), and prescription drug misuse during the same period. An indicator was created for any hard drug use based on the aforementioned substances. Using an item adapted from the NIAAA Task Force (NIAAA 2003), the research team determined if a participant engaged in binge drinking during the previous 3 months, defined as consuming 5 or more drinks of alcohol during a 2-h period (for women, 4 or more drinks indicated binge drinking). For purposes of analyses, binge drinking at least once during the previous 3 months was a positive indicator. Sexual risk behavior was assessed by asking participants whether or not they had condomless vaginal or anal sex in the past 3 months (condomless sex was assessed on a partner-by-partner basis for the last five sex partners, and a global question about condomless sex was used to assess this behavior with other partners; Green et al. 2013). For this study, a variable indicated any unprotected vaginal or anal sex during the previous 3 months.

Service Utilization

Participants were asked what services they received during the previous 3 months based on a list of services (e.g., food bank, help with managing money, help finding a job) adapted from the National Survey of Homeless Assistance Providers and Clients (1999). Five outcome measures of service utilization were created for the purposes of analyses: (1) Basic needs services (participant endorsed utilizing food assistance and/or transportation assistance in past 3 months), (2) Occupational development services (i.e., help with GED/educational goals, help finding a job, and/or job training), (3) Financial services (i.e., help with managing money, and/or assistance with obtaining public benefits), (4) Healthcare services (i.e., medical care, dental care, and/or medication management), and (5) Mental health services (i.e., detoxification from alcohol/drugs, treatment for alcohol/drugs, and/or therapy/services for emotional/psychiatric problems).

Analysis

All predisposing, enabling, and need characteristics were examined in univariable logistic regression models. Because the authors believe *all* significant characteristics of service utilization are points of concern for social workers serving homeless veterans entering PSH, the unanimous decision was made to not examine those significant in univariable models in subsequent multivariable models. Descriptive statistics for all predisposing, enabling and need characteristics are reported in Tables 1, 2 and 3. Odds ratios and confidence intervals for all significant associations with a p value of .10 or less were reported in Table 4. This p value was used due to the relatively small sample size. Those with a p value < .05 were reported in the text and were used to formulate and guide clinical implications. All coding, descriptive statistics and analyses were conducted using SAS version 9.4.

Results

Service Utilization

Of services used during the previous 3 months, homeless veterans reported most frequently receiving healthcare services (80.9%) and basic needs services (79.4%). A little over half (52.4%) reported using mental health services, while 45.2% reported using financial services and 25.4% had occupational development help.

Table 1 Predisposing characteristics of homeless veterans moving into PSH (N = 126)

Predisposing characteristics	N/mean	%/s.d.
Age (years) (range 41–79)	57.24	7.21
Male	114	90.48
Race (Black comparison group)		
Black	62	50.41
White	37	30.08
Latino/Other/Multiracial	24	19.51
At least high school education	117	92.86
Lifetime duration of literal homelessness (years) (range 0–44)	5.94	7.47
Past 3 months duration of literal homelessness (days) (0–90)	93	73.81
Criminal history		
Ever arrested	109	86.51
Ever on probation	85	67.46
Ever incarcerated	103	81.75
Ever incarcerated while homeless	60	47.62
Discharge status (honorable versus anything other than honorable)	87	69.8
Combat exposure	34	27.2
Era (N = 125)		
Vietnam	33	26.4
Gulf War	23	18.4
Operation Enduring Freedom	4	3.2
Operation Iraqi Freedom	2	1.6
Operation New Dawn	2	1.6
Years served in military (range 1–32)	5.68	5.04

Table 2 Enabling characteristics of the sample

Enabling characteristics	N/mean	%/s.d.
Employed in past 3 months (full- or part-time)	12	9.52
Income in past 30 days ($) (range 0–3600)	788.12	607.79
Benefits received (past 30 days)		
SNAP	48	38.10
SSI	30	23.81
Social security	19	15.08
Disability	16	12.70
VA benefits	35	27.78
General Relief	40	31.75
Currently owned a cell phone	118	93.65
Owned a smartphone (of current cell phone owners)	77	65.25
Average number of different phone numbers (range 0–8)	1.42	1.33
Had a case manager	119	94.44
Average number of interactions with a case manager (range 0–100)	22.81	26.28
In a relationship	17	13.49
Social networks (counts; n = 124)		
Average number of alters (range 0–19)	7.38	4.02
Relatives	1.7	2.19
Street Peers	1.73	1.98
Case managers	1.17	1.17
Doctors	0.43	0.66
Mental health care providers	0.4	0.81
Emotionally close to	2.32	2.29
Provides tangible support	1.12	1.75
Gives advice	2.39	2.79
Can confide in	2.76	2.73
Could borrow $100 from	2.25	2.92
Have conflict with	0.98	1.83

Predisposing Characteristics

Table 1 presents the predisposing characteristics of the veteran sample. The sample was primarily composed of men (90.5%), participants who identified as Black (50.4%) or White (30.1%), and individuals with at least a high school education (92.9%). Veterans reported serving almost 6 years in the military, on average, and 27.2% experienced combat. With regard to service era, 26.4% of veterans served during the Vietnam era, 18.4% served during the Gulf War, while 6.4% served during the Iraq and Afghanistan Era. A little over two-thirds of veterans (69.8%) received an honorable discharge. Veterans reported a lifetime average of 5.9 years of literal homelessness ($SD = 7.5$, range = 0–44). Regarding their criminal history, results indicated that most veterans had been incarcerated at some point in their lifetime (81.8%), with 47.6% reporting they were incarcerated while homeless.

In univariable models (Table 4), results indicated that veterans above the age of 57 were less likely to utilize basic need services, compared to veterans under 57. Veterans who had a history of incarceration were more likely to utilize basic needs services, compared to those without incarceration histories. Veterans who received an honorable discharge were more likely to utilize occupational development services in the past 3 months, compared to veterans with other discharge statuses. Veterans whose racial identifications fell within the Latino/Other/Multiracial racial category were less likely to utilize financial services and less likely to utilize mental health services, compared to Black veterans.

Enabling Characteristics

With regard to enabling characteristics (Table 2), veterans reported receiving an average of $788.10 of income during the previous 30 days ($SD = 607.80, range = $0–$3,600), and income benefits included social security income or disability (34.9%), VA benefits (27.8%), and General Relief (31.8%). The majority of participants owned a cell phone at baseline (93.7%), of whom 65.3% currently owned a smartphone. Nearly all participants (94.4%) reported having a case manager, and on average, veterans met 22 times with their case managers in the previous 3 months (range 0–100).

Table 3 Need characteristics of the sample

Need characteristics	N/mean	%/s.d.
Chronic physical health condition diagnoses		
Respiratory conditions	38	30.16
High blood pressure/hypertension	63	50.00
Diabetes	28	22.22
Cancer	15	11.90
Arthritis	44	34.92
Anemia	15	11.90
STI (Syphilis, Gonorrhea, Hep B, Hep C, HPV, Chlamydia)	31	0.32
HIV	8	6.35
Chronic mental health condition diagnoses		
Schizophrenia	29	23.02
PTSD	43	34.13
Anxiety	50	39.68
MDD	56	44.44
Bipolar disorder	33	26.19
Panic disorder	19	15.08
Social phobia	14	11.11
MCSI score above 16 (range 0–49)	68	53.97
Positive PTSD screen	61	48.41
Substance use (past 3 months)		
Hard drugs	26	20.63
Binge drinking	17	13.59
Daily tobacco use	71	66.36
Sex Risk (past 3 months) (N = 125)		
Any sex	38	30.16
Unprotected sex	28	73.70

Regarding social network characteristics, veterans reported an average network size of 7.4 ($SD = 4.0$, range = 0–19). Veterans reported approximately two relatives and two street peers with whom they interacted during the previous 3 months. Veterans also reported an average of one case manager, whereas the average number of doctors and mental health care providers was less than one, each. Additionally, veterans had about two people who provided them with social support (i.e., gave advice, could borrow money from, were emotionally close to). However, veterans only reported about one person who provided them with tangible support, compared to an average of almost three people in their social networks in whom they could confide.

In univariable logistic regression models, results indicated veterans receiving General Relief benefits were more likely than those not receiving GR to utilize basic needs services. Veterans who owned a smartphone were more likely to use occupational services compared to those without a smartphone. Homeless veterans who received food stamps were more likely to utilize occupational services and financial services than those who did not receive food

stamps. Those who received social security were less likely to utilize mental health services compared to veterans who did not receive social security. Veterans who had a case manager were more likely to utilize mental health services than those without a case manager. Additionally those who reported meeting with their case manager 22 times or more were more likely to utilize occupational services compared to veterans who reported meeting with their case manager fewer than 22 times.

Results from the univariable models with social network indicators and service utilization outcomes indicated veterans who reported a mental health counselor in their network were more likely to use basic needs services and more likely to use mental health services, compared to those who did not report a mental health counselor in their network. Veterans who reported more advice-giving network members were more likely to use basic needs services, occupational development services and mental health services, compared to those with fewer or no advice giving network members. Veterans who had more network members they could confide in were more likely to use basic needs services, and more likely to use healthcare services, compared to those with fewer or no network members they could confide in. Veterans who had more network members they could borrow money from were more likely to use financial services, as were veterans with more network members with whom they had conflict, compared to those with fewer or no members they could borrow money from or fewer with whom they had conflict.

Need Characteristics

Need characteristics (Table 3) revealed veterans had a range of lifetime diagnoses of physical and mental health conditions. Half of the veterans (50.0%) in the sample reported a diagnosis of high blood pressure, 34.9% had arthritis, 30.2% reported a respiratory condition, and 22.2% reported a diagnosis of diabetes. The most prevalent mental health diagnoses included depression (44.4%), anxiety (39.7%), and PTSD (34.1%). Regarding psychological functioning, 54.0% scored above 16, indicating a likely current psychiatric disability, and nearly half of the sample (48.4%) endorsed symptoms indicative of probable PTSD. Hard drug use during the previous 3 months was reported by 20.6% of the sample, whereas 13.6% engaged in binge drinking and 66.4% were daily smokers. During the previous 3 months, 30.2% of veterans reported engaging in any vaginal or anal sexual activity, of whom 73.7% reported having unprotected sex.

Logistic regression models indicated that among this sample of veterans those with a lifetime diagnosis of schizophrenia, PTSD, depression, anxiety, or bipolar disorder were more likely to use mental health services, compared to veterans without these diagnoses. Veterans with a diagnosis of depression were also more likely to utilize basic

Table 4 Univariable logistic regression results of significant predisposing, enabling and need characteristics with service utilization outcome

	Basic needs			Occupational			Financial			Healthcare			Mental health		
	OR	CI	p	OR	CI	p	OR	CI	p	OR	CI	p	OR	CI	p
Predisposing characteristics															
Age	0.35	.14, .87	*	–	–	–	–	–	–	2.3	.89, 6.11	0.08	0.53	.26, 1.09	0.08
White	2.84	.90, 8.91	0.07	–	–	–	2.14	.98, 4.68	0.06	–	–	–	0.38	.15, .98	*
Latino/Other/Multiracial	–	–	–	2.23	.86, 5.80	0.10	0.17	.06, .55	**	–	–	–	–	–	–
Ever incarcerated	5.06	1.94, 27.22	*	–	–	–	–	–	–	–	–	–	–	–	–
Literal homelessness	–	–	–	–	–	–	–	–	–	–	–	–	1.33	.63, 2.81	0.06
Discharge status	–	–	–	3.40	1.08, 10.44	*	–	–	–	–	–	–	–	–	–
Enabling characteristics															
Employment	0.32	.09, 1.09	0.06	–	–	–	–	–	–	–	–	–	–	–	–
Income	0.47	.19, 1.15	0.09	0.49	.21, 1.10	0.08	–	–	–	–	–	–	–	–	–
General Relief	3.10	1.18, 9.68	*	2.03	.89, 4.67	0.09	–	–	–	0.47	.19, 1.17	0.10	–	–	–
SNAP	–	–	–	2.30	1.02, 5.21	*	2.37	1.13, 4.93	*	–	–	–	–	–	–
Social security	–	–	–	0.43	.17, 1.10	0.07	–	–	–	–	–	–	0.27	0.09, 0.80	**
Disability benefits	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Smartphone ownership	–	–	–	2.80	1.04, 7.54	*	–	–	–	–	–	–	–	–	–
Different phone numbers	–	–	–	–	–	–	1.33	.74, 2.38	0.08	–	–	–	–	–	–
Case manager	–	–	–	–	–	–	–	–	–	–	–	–	7.20	1.84, 61.79	*
Interactions w/case manager	–	–	–	2.60	1.17, 5.93	*	–	–	–	–	–	–	2.00	.92, 4.36	0.08
Network members															
Mental health care providers	5.00	1.22, 20.22	*	–	–	–	–	–	–	–	–	–	4.77	2.05, 11.08	**
Gives advice	3.13	1.74, 5.64	**	2.50	1.34, 4.75	**	–	–	–	–	–	–	1.91	1.21, 3.03	**
Can confide in	2.00	1.08, 3.68	*	–	–	–	–	–	–	2.15	1.15, 4.00	**	1.69	.99, 2.87	0.05
Could borrow $100 from	–	–	–	–	–	–	1.93	1.18, 3.14	*	–	–	–	–	–	–
Have conflict with	–	–	–	–	–	–	2.16	1.28, 3.63	**	–	–	–	–	–	–
Need characteristics															
Respiratory conditions	–	–	–	0.45	.17, 1.20	0.10	–	–	–	–	–	–	–	–	–
Arthritis	–	–	–	–	–	–	–	–	–	0.46	.19, 1.13	0.09	–	–	–
Schizophrenia	–	–	–	0.39	.13, 1.24	0.10	–	–	–	–	–	–	3.03	1.23, 7.51	**
PTSD	–	–	–	–	–	–	–	–	–	–	–	–	3.54	1.60, 7.85	**
Anxiety	2.62	0.97, 7.08	0.05	–	–	–	–	–	–	–	–	–	7.70	3.32, 17.81	**
MDD	3.30	1.24, 9.00	**	–	–	–	–	–	–	2.25	.86, 5.88	0.09	4.90	2.28, 10.60	**
Bipolar disorder	–	–	–	–	–	–	–	–	–	–	–	–	4.92	1.94, 12.47	**
Panic disorder	–	–	–	–	–	–	–	–	–	–	–	–	2.96	.99, 8.80	0.05
MCSI score	4.25	1.63, 11.03	**	–	–	–	–	–	–	–	–	–	3.45	1.65, 7.18	**
Positive PTSD screen	3.19	1.23, 8.25	**	–	–	–	–	–	–	–	–	–	2.85	1.38, 5.90	**

Table 4 (continued)

	Basic needs			Occupational			Financial			Healthcare			Mental health		
	OR	CI	p	OR	CI	p	OR	CI	p	OR	CI	p	OR	CI	p
Hard drugs	3.79	.83, 17.22	0.07	0.32	.09, 1.15	0.07	–	–	–	–	–	–	2.44	.97, 6.12	0.05
Binge drinking	–	–	–	–	–	–	–	–	–	0.36	.12, 1.11	0.07	–	–	–
Daily tobacco use	–	–	–	–	–	–	–	–	–	–	–	–	2.19	1.04, 4.59	*
Any sex	0.34	0.14, 0.83	**	–	–	–	–	–	–	–	–	–	–	–	–

*Findings significant at the p < 0.05 level

**Findings significant at the p ≤ 0.01 level

needs services in the past 3 months compared to those without this diagnosis. Veterans who met criteria for a current psychological disability and veterans who met criteria for probable PTSD were more likely to use basic needs services and mental health services than veterans who fell below these thresholds. Additionally, veterans who reported engaging in any past 3-month sexual activity had lower odds of using basic needs services when compared to those who did not report sexual activity. Lastly, veterans who reported being daily tobacco users were more likely than those who were not daily users to utilize mental health services in the past 3 months.

Service Implications and Recommendations

Equal Access to Services Across Predisposing Characteristics

As seen in the described sample, variation exists across predisposing characteristics, which are of critical importance because they may serve as barriers and ultimately cause disparities in health behavior and accessing health services. This study found that individuals within the Latino/Other/Multiracial group were less likely to use financial and mental health services. Across differing racial groups, research has suggested there may be differences in utilization of healthcare services (Gordon et al. 2010), substance use treatment completion (Stack et al. 2000), and clinical outcomes among veterans, including those in PSH (O'Connell et al. 2012). This disparity may be a function of veterans' locations (Gordon et al. 2010) or reduced social networks (O'Connell et al. 2012). In this sample, younger veterans and veterans with incarceration histories were more likely to use services to meet their basic needs. This may be an indication that veterans with these predisposing characteristics have fewer resources than others in the sample. Incarceration histories in particular have been identified as barriers in securing housing and receipt of services among homeless populations (Kort-Butler and Tyler 2012).

Such differences across predisposing characteristics highlight the need to ensure equal access to services in housing. Although the mission of PSH is to provide quality services to all formerly homeless veterans at a level tailored to each resident's needs and desire to engage in services, variation in PSH programs and the funding sources attached to these programs may affect the delivery of supportive services. Social workers should ensure that they are taking into account predisposing characteristics that may negatively affect veterans' ability to obtain services for reasons such as fear, discrimination, and desirability, and the significance of these services in preventing adverse outcomes such as returning to homelessness or incarceration.
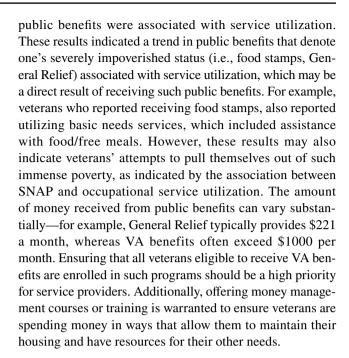
Ensuring Quality Care Regardless of Discharge Status

Veterans' military experiences are unique, distinguishing them from other homeless populations. As an example, VA benefits are unique to military personnel, yet discharge status affects some service members' eligibility for benefits including medical services and PSH vouchers (U.S. Department of Veterans Affairs 2015). Although two-thirds of participants in this sample left the military with an honorable discharge, these rates are low in comparison with the general population of veterans (Fargo et al. 2012). This is in line with other research, which has suggested veterans without honorable discharges are at a substantially higher risk of homelessness (Fargo et al. 2012). A substantial proportion of veterans in this study who left their military service without honorable or general conditions deployed during their military service, often more than once, and present with the same or escalated health concerns as those with honorable or general statuses. Veterans in this sample without these discharges were less likely to use occupational development services. Given the Congressional interest in veteran employment (Collins et al. 2014), PSH priorities (Poremski et al. 2016) as a means to improve employment and housing retention rates (Rosenheck and Mares 2007) and to honor veterans who have undergone traumatic experiences and health risks or injuries during their military service, providing veterans who do not have an honorable discharge opportunities to advance their occupational goals and other service needs is critical.

Enhancing Economic Stability

Several trending associations between employment and income with services were observed. Only 10% of this sample was employed at the baseline assessment and overall, the average monthly income in this sample was low. This may be common for currently homeless veterans, especially those at least 39 years old, as older homeless adults may have more health problems and be unable to work. Income and employment may increase following entry into housing once basic needs are met (Burt 2012). Veterans who are able to work may need employment preparation or job skills training to find a suitable position. Such training might include courses, certification training, interviewing skills, and resume workshops. The VA has implemented several vocational rehabilitation programs, including Compensated Work Therapy (Rosenheck 2008) and individual placement and support (IPS; Rosenheck and Mares 2007), which have resulted in competitive employment outcomes for vulnerable veteran populations and may be viable avenues increasing economic stability for veterans in PSH.

A majority of the sample reported receiving income from at least one public benefit source, and several measures of public benefits were associated with service utilization. These results indicated a trend in public benefits that denote one's severely impoverished status (i.e., food stamps, General Relief) associated with service utilization, which may be a direct result of receiving such public benefits. For example, veterans who reported receiving food stamps, also reported utilizing basic needs services, which included assistance with food/free meals. However, these results may also indicate veterans' attempts to pull themselves out of such immense poverty, as indicated by the association between SNAP and occupational service utilization. The amount of money received from public benefits can vary substantially—for example, General Relief typically provides $221 a month, whereas VA benefits often exceed $1000 per month. Ensuring that all veterans eligible to receive VA benefits are enrolled in such programs should be a high priority for service providers. Additionally, offering money management courses or training is warranted to ensure veterans are spending money in ways that allow them to maintain their housing and have resources for their other needs.

Establishing and Utilizing Positive Relationships to Improve Housing and Health

The majority of veterans reported having a case manager upon entering PSH and appeared to interact frequently with them. In this sample, veterans who reported a mental health counselor in their social networks were more likely to use services to satisfy basic needs and mental health services. The number of interactions with a case manager was also associated with increased utilization of occupational development services. It may be that in the months prior to entering PSH, mental health counselors and case managers play a critical role in facilitating homeless veterans' service use, especially when relationships that can facilitate service use, such as family and friends, may be less available as a result of homelessness.

Results from this study indicate that the support network members provide may be of particular salience in facilitating service use among homeless veterans. Specifically, advice-giving network members emerged as a trend in predicting service utilization. While homeless, advice from network members related to service utilization may be especially important as veterans navigate the housing and service system. Having network members who veterans perceived to be individuals they could borrow money from if they needed, and having network members with whom they had conflict with, were positively associated with utilizing financial services. This may indicate that these veterans have conflict with network members related to monetary resources and/or that conflict actually facilitates their seeking these means from financial assistance programs. It may be important for social workers to assess

all sources of income from their homeless clients or PSH residents and assist in increasing their independent sources of income and reducing dependence on network members in order to minimize income-related conflict.

Relationships play a critical role in facilitating health behavior change (Heaney and Israel 2008; Berkman 1995; Kelly et al. 1991) and use of services (Kouzis and Eaton 1998; Lam and Rosenheck 1999; Penning 1995). Participants in this sample reported having few individuals who provided each source of social support and even fewer healthcare providers in their networks. Research has indicated that relationships change following entry into PSH (Henwood et al. 2015). As network changes occur, it may be important to monitor the existence of positive and negative relationships among veterans and ensure that relationships are not inhibiting service utilization.

Providing Safe, Affordable Housing and Trauma-Informed Services

The prevalence of probable PTSD in this sample was alarmingly high, yet consistent with other cohorts of homeless veterans (Tsai et al. 2013). Current PTSD and lifetime diagnoses of PTSD were also associated with mental health service utilization. Traumatic experiences occur frequently during military service, with military sexual assault often serving as a pathway to homelessness for females (Hamilton et al. 2011), and combat exposure serving as a common pathway for male veterans (Tsai et al. 2013). These experiences are likely exacerbated while homeless among both genders via experiences such as re-victimization (Pavao et al. 2013) and maladaptive behaviors such as substance use.

To address the rates of PTSD among both genders, evidence-based practices including trauma-informed care in PSH services is warranted. Trauma-informed care is an evidence-based approach to treating trauma and has been identified as an effective intervention that is beneficial in homeless services, with some evidence that it also improves housing stability (Hopper et al. 2009). The trauma-informed care model recognizes the prevalence of trauma among veterans, commits to identifying and addressing it, attempts to understand the connections between previous traumas and presenting symptoms, and attempts to minimize re-victimization (Bremness and Polzin 2014). Female veterans with traumatic histories have expressed a desire for treatment focused on safety (Hamilton et al. 2011). The prevalence of a male-dominated homeless veteran population, as seen in this sample, may warrant unique services and accommodations across genders. Specifically, separate housing spaces for female veterans may afford greater safety and possibly a reduction in risk of re-victimization and re-traumatization.

Targeting Risk Behavior Through Harm Reduction Methods

Although hard drug use only trended toward significance, > 20% of this sample reported using hard drugs and nearly 15% reported binge drinking during the preceding 3 months, indicating that individuals are entering PSH with substance use treatment needs. Interestingly, tobacco use was associated with increased use of mental health services. This association is likely attributed to the high rates of mental health and substance use among this sample, which are associated with increased tobacco use (Baggett et al. 2017) and may subsequently lead to use of mental health services. However, it highlights the opportunity for social workers treating veterans to address risk behaviors, including tobacco use, in mental health treatment.

In this sample, engaging in past 3-month sexual activity was associated with less use of basic needs services. This may be an indication that veterans who have their basic needs met are more likely to be in romantic and sexual partnerships. In the general population of homeless adults, lack of stable housing is associated with increased sexual behavior among men and women, often leading to engaging in risky sexual practices (Brown et al. 2012; Wenzel et al. 2007; Wolitski et al. 2007) and elevated rates of HIV and STIs (Klinkenberg et al. 2003; Nyamathi et al. 2002). Additionally, among participants who reported engaging in sexual activity during the prior 3 months, a substantial portion also reported engaging in unprotected sex, although this was not significantly associated with service utilization. More research is needed in this area, as sexual risk behavior among homeless veterans is largely unstudied, however, these findings may indicate risky sexual practices are deserving of clinical attention for this population.

In addition to improved understanding of sexual risk behavior among homeless veterans and veteran residents, using harm reduction approaches to address other risk behaviors deserving clinical attention is also needed. Reducing the risk of contracting HIV and STIs and risk of morbidity and mortality associated with tobacco use (Baggett et al. 2013; Kennedy et al. 2013; Wenzel et al. 2007) are as critical as reducing more commonly addressed risks associated with substance use. Harm reduction methods have been the prominent treatment approach to addressing substance use and other risk behaviors in PSH (Tsemberis et al. 2004). In the harm reduction model, social workers' risk interventions should be tailored according to clients' stage of change and should ensure that clients can make choices, including to use substances, without affecting their housing status (Prochaska et al. 1992; Tsemberis et al. 2004). It is critical that providers' use of harm reduction is not reduced to allowing clients to elect to engage in risk without also implementing harm reduction interventions. Social workers should be trained to employ or refer clients to harm reduction tools including

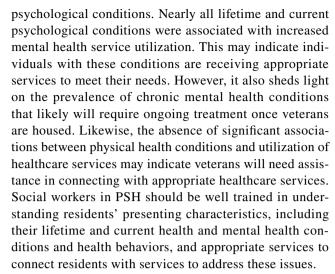motivational interviewing, overdose prevention kits, and clean needles.

Engaging Veterans in Effective, Evidence-Based Interventions

In addition to implementing harm reduction and trauma-informed care, service providers should implement other evidence-based interventions to treat veterans in PSH. One way to engage homeless veterans in their healthcare treatment is to utilize technology, either to coordinate care or assist in delivering a specific intervention (McInnes et al. 2015). In this sample, the majority of veterans owned a cell phone, of whom nearly two-thirds owned smartphones. Owning a smartphone was associated with increased use of occupational services, which may be an indication that smartphones are an important component of veterans' work and educational activities, and may be a useful tool in veterans' service use and engagement. Among homeless populations, technology-based intervention programs have become increasingly feasible due to the increasing number of homeless persons who own cell phone and other electronic devices (Rhoades et al. 2017). A meta-analysis found that 44–62% of homeless people owned cell phones (McInnes et al. 2013) and a study in Massachusetts reported that 88% of homeless veterans owned a cell phone (of whom 35% had a smartphone; McInnes et al. 2014). Veterans from these studies were overwhelmingly receptive to receiving electronic reminders about medical appointments and medication management (McInnes et al. 2014). Cell phone ownership may allow social workers to communicate and coordinate care with their clients in a more streamlined fashion and may provide future opportunities to test and implement health and mental health-related interventions that enhance the effectiveness of these services and increase access by residents.

Broadly, there are many efficacious treatments that may or may not incorporate technology, including cognitive-behavioral therapy and group therapy for PTSD (Foa et al. 2009), self-management behaviors for diabetes (Funnell et al. 2009), and medication adherence for high blood pressure (Bramley et al. 2006). However, there is limited evidence of effective interventions that can specifically address the needs of homeless veterans or veteran PSH residents (O'Campo et al. 2009). Interventions appropriate to this population are needed to ensure recovery and community integration among veteran residents.

Training Social Workers in PSH to Provide Well-Informed Linkages and Services

In line with other samples of homeless veterans, this sample presented with high rates of lifetime and current psychological conditions. Nearly all lifetime and current psychological conditions were associated with increased mental health service utilization. This may indicate individuals with these conditions are receiving appropriate services to meet their needs. However, it also sheds light on the prevalence of chronic mental health conditions that likely will require ongoing treatment once veterans are housed. Likewise, the absence of significant associations between physical health conditions and utilization of healthcare services may indicate veterans will need assistance in connecting with appropriate healthcare services. Social workers in PSH should be well trained in understanding residents' presenting characteristics, including their lifetime and current health and mental health conditions and health behaviors, and appropriate services to connect residents with services to address these issues.

Prior to entering housing, social workers and other service providers are critical in assisting homeless veterans with obtaining housing and connecting them to services. Once housed, relationships with providers are equally as instrumental for residents' utilization of services. It is possible that providers involved in helping veterans obtain housing may be different than case managers and social workers who interact with housed veterans. Therefore, it is important that all providers ensure that collaborative, supportive relationships are maintained for residents when provider teams transition. To align with PSH's previous success in reducing high-cost services (Larimer et al. 2009; Tsemberis et al. 2004), building collaborative, social worker–client relationships is critical before and after entry into PSH to reinforce the use of appropriate services to meet their needs.

Conclusion

With the goal of advancing knowledge on health and services beyond housing placement and retention, this study used a behavioral model to examine associations between predisposing, enabling, and need characteristics and service use among homeless veterans entering PSH. Results from this study highlight areas deserving additional attention from social workers. Given that the literature on services, best practices and health outcomes of PSH residents is still emerging, findings from this paper serve an important role in informing the field of social work about broad clinical implications for homeless veterans who are transitioning into PSH. Findings from this study might be used as a platform for social workers to enhance tailoring of services for this population, and to seek further training where appropriate in order to maximize the potential to improve the lives of the veterans they serve.

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