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Low Uptake of Secure Messaging Among Veterans with Experiences of Homelessness and Substance Use Disorders

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Abstract

Objectives.—Persons who are homeless have significant health challenges and barriers accessing care. Secure messaging supports communication between patients and their providers through a web-based portal, but the acceptability of this technology among patients with high prevalence of substance use disorders (SUDs) is unknown. We examined secure messaging use among Veterans with experiences of homelessness (VEHs), and determined factors associated with messaging use.

Methods.—We conducted a cross-sectional analysis of responses to a national survey of VEHs, administered by mail from March-October 2018 (response rate=40.2%). One item assessed secure messaging use and satisfaction. We used multivariable logistic regressions to model secure messaging use, controlling for sociodemographics, medical conditions, housing indicators, and mental health and SUD diagnoses.

Results.—Of 5,072 VEHs, 21% had ever used secure messaging and 87% of the subsample found messaging to be useful. Secure messaging was more commonly used by VEHs who were female, had some college education, those with   3 chronic medical conditions, depression, or post-traumatic stress disorder (all p<.001). Messaging was much less common for VEHs ages 55–64 or older, non-Latino Blacks, those receiving homeless-tailored primary care, and those with

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SUDs (all p<.001). VEHs with opioid use disorder were even less likely than those with other SUDs to use secure messaging (p=.047).

Conclusions.—Persons with homeless experiences might require assistance to engage with secure messaging technology. As health systems limit in-person care during a national pandemic, alternative solutions may be needed to facilitate health communications and prevent care disruptions for patients experiencing homelessness and SUDs.

Keywords

Telemedicine; homeless persons; opioid-related disorders; veterans

Introduction

Vulnerable patients with a high prevalence of substance use disorders (SUDs) face significant health and healthcare challenges, necessitating alternative care modalities. Homeless-experienced patients may have medical, mental health, and SUD care needs and access barriers (e.g., lack of transportation, competing priorities) that impede in-person visits to mainstream care settings.[1] Frequent changes of addresses and telephone numbers can also hinder efforts by health systems to maintain contact with patients experiencing homelessness. The Veterans Health Administration implemented a patient health portal in 2010 with secure messaging features to support communication between patients and providers at their convenience.[2] While secure messaging could mitigate barriers for certain care needs (e.g., requests for social assistance or renewal of medications), acceptability among Veterans with experiences of homelessness (VEHs) is unknown.

Results from prior studies of health technology interventions suggest secure messaging could be challenging for VEHs. In one setting, patients who were homeless were less interested in enrolling in patient health portals than were housed patients, and lack of access to computers/internet was among the most common reasons for disinterest.[3] Two other studies found most homeless-experienced patients owned cell phones and were receptive to text messages, another asynchronous form of health communication. However, most lacked smartphones with internet capabilities[4,5] – devices that could be used for secure messaging through patient health portals.

There is a heightened interest in secure messaging at present because health systems have limited in-person visits for non-urgent reasons during the coronavirus disease (COVID-19) pandemic. Even before COVID-19, however, there was uncertainty about how to assure alternative care modalities for VEHs when they might not have the technological capabilities. A recently completed survey of 5,766 VEHs provided an opportunity to consider this matter on a national scale. The goals for this paper were to determine secure messaging use and satisfaction among VEHs, and to explore factors associated with secure messaging use.

Methods

We conducted a cross-sectional analysis of responses from the 2018 Primary Care Homeless Services Tailoring (PCQ-HoST) survey.[6] Surveys were mailed to a national, stratified random sample of VEHs receiving care in 26 Veterans Affairs medical centers with homeless-tailored primary care clinics (called "H-PACTs") among their services.[6] All study procedures were approved by the Veterans Affairs Central Institutional Review Board.

The PCQ-HoST included 81 items, with one querying: *Have you ever used secure messaging in the My HealtheVet system? No; Yes, and I found it useful; Yes, but I did not find it useful.* For this study, we included measures correlated with messaging use in other populations: age, gender, race/ethnicity, education, marital status, number of chronic medical conditions (0–8, categorized as 3 conditions versus <3), chronic pain, and mental health and SUD diagnoses.[7,8] Because housing circumstances could plausibly impact technology access, we also examined nights without shelter in the past 6 months (1 versus 0).

We used multivariable logistic regressions to test associations between patient characteristics with secure messaging. From the model, we estimated the probability of messaging use for hypothetical patients differing in sociodemographics and history of SUDs. Analyses were weighted for the modeled likelihood of non-response. To account for the stratified sampling design, analyses controlled for clinic type (i.e., H-PACT versus other); standard errors were adjusted for sampling within facilities using the *svy* commands in Stata version 15. Two-sided p-values <0.05 were considered statistically significant.

Results

Of 14,340 potential participants, 5,766 (40.2%) responded to the survey and 5,319 completed the secure messaging items (see CONSORT figure, Supplemental Digital Content 1). After excluding 247 participants with missing data on study covariates, the analytic cohort (n=5,072) was largely male, middle-aged, with some college education (Table). Significant proportions of VEHs were racial/ethnic minorities and experienced chronic pain, mental health disorders, and SUDs.

One in five (21%) VEHs used secure messaging, and 87% of this subgroup found messaging useful. Secure messaging was more commonly used by VEHs who were female, had some college education, 3 medical conditions, depression, or post-traumatic stress disorder (Table). Messaging was less commonly used by VEHs who were older, non-Latino Black, those enrolled in H-PACTs, and those with SUDs. VEHs with opioid use disorder (OUD) were even less likely than those with other drug use disorders to use secure messaging (linear contrast p=0.047).

Under illustrative patient scenarios, the probability of secure messaging use for a 55-year-old Black man with a history of OUD was 10.3% (CI=7.1%−13.5%; Figure). For comparison, the probability of secure messaging use for a 45-year-old White man with a non-opioid drug use disorder history was 23.5% (CI=19.8%−27.1%), and for a 35-year-old White woman with no SUD history was 41.8% (CI=35.2%−48.2%).

Discussion

Three-quarters of VEHs did not use secure messaging, and uptake was especially low among VEHs who were older, non-Latino Black, and those with SUD histories. However, most secure message adopters (87%) found the technology useful, which suggests potential value in addressing health technology barriers experienced by vulnerable patients.

Although our study was conducted before the COVID-19 pandemic, findings of low messaging use could represent a missed opportunity at present. Secure messaging could help patients during this period of reduced in-person visits to reach out to providers for early-onset symptoms, or the continuation of medications for addiction and non-addiction care needs without in-person contact. Such communication is important as rising overdose trends may have increased since COVID-19.[9,10] Additionally, patients with experiences of homelessness and/or SUDs are at risk for COVID-related complications due to underlying medical conditions, including lung disease.[11,12] The racial/ethnic disparities we found are also concerning. Black adults are the most negatively impacted US ethnic groups for COVID-related complications,[13] but they are among the least likely VEHs to use secure messaging. We also observed low messaging use for patients enrolled in H-PACTs, an adapted primary care model for vulnerable VEHs. We suggest that some H-PACT service arrangements (e.g., walk-in appointments, extended clinic hours, street outreach) could facilitate patient access in ways that reduce the need for technology alternatives.[6] It will be important for these clinic models to evolve in response to VEH needs when in-person care is not feasible.

An open question is whether these findings point towards barriers with other types of telehealth. Reimbursement for telehealth in many settings favors two-way audio-visual communication,[14] but this may not be possible for vulnerable populations.[8] Two-way audio-visual visits are scheduled like in-person appointments; they require device access, comfort installing applications, and internet connection. While this study did not assess two-way audio-visual visits, our results hint that some VEHs may have difficulty participating in such visits due to technology barriers.

The study is limited by a modest response rate. We did not assess patient interest in web-based health communications[3] or other technology barriers that could explain the low uptake of secure messaging for some VEHs. Because our results reflect VEHs who successfully engaged in care, messaging uptake will likely prove worse for VEHs less connected to a system of care.

Patients at-risk for health disparities related to unstable housing, race/ethnicity, or SUD history may benefit from help engaging with secure messaging within a patient health portal. During an international pandemic, patients with limited health technology use may require alternatives to ensure timely health communications and prevent care disruptions. This might include providing patients with tablets or smartphones with data plans to maintain continuity of care,[15] technology assistance and outreach.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

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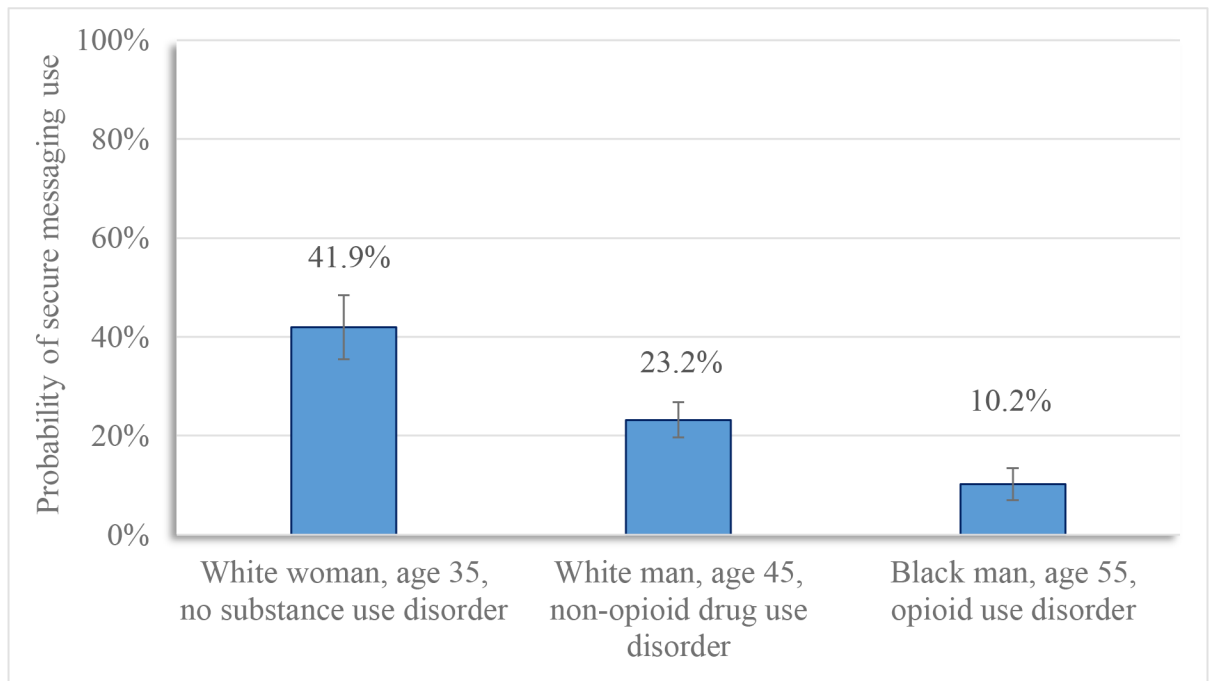
Figure.
Predicted probability of secure messaging use among Veterans who have experienced homelessness differing in age, race/ethnicity and type of substance use disorder diagnosis. Estimates were derived from a multivariable logistic regression model of secure messaging use. Predictors included age (continuous), gender, race/ethnicity, education, marital status, type of Veterans Health Administration primary care at the time of recruitment (homeless-tailored versus not), three or more self-reported medical conditions, chronic pain, and diagnoses of depression, anxiety, post-traumatic stress disorder, and substance use disorders (Table).

Table.

Association of participant characteristics with secure messaging use among Veterans who have experienced homelessness in the Veterans Health Administration[a]

| Characteristic | Participants | Secure messaging use[b] | | | |
	N (weighted %)	% used secure messaging	Adjusted odds ratio	95% CI	*p*-value
Gender					
Male	4572 (90.7)	19.5	1.0		
Female	480 (8.9)	36.4	1.38	1.09–1.74	0.007
Other	20 (0.4)	40.8	1.79	0.69–4.66	0.23
Age					
18–54 years	1378 (34.6)	27.8	1.0		
55–64 years	2604 (48.6)	17.9	0.67	0.57–0.80	<0.001
65+ years	1090 (16.8)	16.5	0.50	0.40–0.63	<0.001
Race/ethnicity					
Non-Latino White	1973 (38.1)	23.1	1.0		
Non-Latino Black	1914 (36.8)	17.4	0.70	0.59–0.84	<0.001
Latino	541 (11.7)	23.4	0.89	0.69–1.14	0.34
Other	511 (11.0)	22.7	0.84	0.65–1.08	0.17
Missing	133 (2.5)	25.9	1.09	0.71–1.67	0.69
More than high school education	3122 (61.6)	25.5	1.81	1.53–2.13	<0.001
Married	787 (14.8)	26.3	1.16	0.95–1.42	0.14
Unsheltered recently (1 night without shelter last 6 months)	733 (15.6)	19.3	0.87	0.70–1.08	0.22
Homeless-tailored primary care panel vs regular primary care panel	2994 (63.2)	17.9	0.67	0.58–0.78	<0.001
Mental health disorder diagnoses[c]					
Depression	2861 (56.9)	24.8	1.53	1.29–1.81	<0.001
Anxiety	1458 (30.5)	26.5	1.18	0.99–1.40	0.05
Post-traumatic stress disorder	1323 (28.8)	27.2	1.29	1.09–1.54	0.003
Serious mental illness	932 (21.5)	20.5	0.98	0.80–1.19	0.83
3 Chronic medical conditions[d]	1505 (26.1)	22.2	1.13	1.04–1.23	0.004
Chronic pain[e]	3101 (60.4)	22.6	1.13	0.97–1.33	0.12
Substance use disorder[c,f]					
None	2595 (48.5)	23.9	1.0		
Alcohol use disorder	739 (13.9)	18.6	0.70	0.56–0.87	0.001
Non-opioid drug use disorder	1391 (30.1)	19.0	0.71	0.59–0.86	0.001
Opioid use disorder	347 (7.5)	15.5	0.49	0.35–0.69	<0.001

[a] Data from the 2018 Primary Care Quality-Homeless Services Tailoring (PCQ-HoST) survey.

[b] Secure messaging use is calculated as the weighted percent of participants in each demographic group who affirmed using secure messaging (row percent). Adjusted odds ratios, 95% confidence intervals and *p*-values obtained from survey-weighted multivariable logistic regression model, adjusting for all patient characteristics in the Table.

[c]Mental health and substance use disorder diagnoses were determined from International Classification of Disease (ICD) diagnoses recorded in VHA inpatient or outpatient visit records in the 2 years prior to survey recruitment. Serious mental illness included bipolar and schizophrenia disorders and psychosis.

[d]Lifetime chronic medical conditions, self-reported on the PCQ-HoST survey, included hypertension or high blood pressure, arthritis, diabetes, asthma, coronary artery disease, cerebrovascular disease or stroke, emphysema, myocardial infarction or heart attack.

[e]Chronic pain was assessed with a validated screener for the presence of pain lasting more than 3 months, along with a current pain rating of 4 or higher on a 10-point pain scale.

[f]The substance use disorder diagnoses are hierarchically coded, such that individuals with alcohol and drug use disorder diagnoses are coded as having a drug use disorder; those with opioid and non-opioid drug use disorders are coded as opioid use disorder.