Impact of Community Investment in Safety Net Services on Rates of Unsheltered Homelessness Among Veterans

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Unsheltered homelessness among veterans has declined rapidly since 2009; however, more than one-third of veterans experiencing homelessness stayed in places not meant for human habitation during 2014. Research has identified a negative relationship between federal spending on the social safety net and community-level rates of homelessness, but not specifically for veterans. The present study assessed whether investment in veteran-specific safety net resources predicted changes in the rate of unsheltered veteran homelessness. Increases in Veterans Affairs (VA) medical care expenditures were significantly associated with a decline in unsheltered veteran homelessness, perhaps explained by additional VA resources aimed at identifying and housing these veterans.

Key words: Homeless, veterans, safety net, unsheltered, community-level

On one night in January 2014, approximately 30% of all people experiencing homelessness in the United States—177,373 people—were staying in an unsheltered situation such as a car, park, or some other location not intended for human habitation (U.S. Department of Housing and Urban Development [HUD], 2014a). This segment of the homeless population is of particular concern given that people experiencing unsheltered homelessness are often chronically...
homeless (Cousineau, 1997; Levitt, Culhane, DeGenova, O’Quinn, & Bainbridge, 2009; O’Toole, Gibbon, Hanusa, & Fine, 1999; Shern et al., 2000; Tsai, Kasprow, Kane, & Rosenheck, 2014), unemployed, and have attained low levels of education (O’Toole et al., 1999; Shern et al., 2000). Unsheltered homeless status is also associated with serious mental illness (Larsen, Poortinga, & Hurdle, 2004) and substance use disorders (Cousineau, 1997; Larsen et al., 2004), which are often co-occurring (Shern et al., 2000) as well as poor physical health (Gelberg & Linn, 1989; Lam & Rosenheck, 1999; Macnee & Forrest, 1997; Nyamathi, Leake, & Gelberg, 2000), that may be further impacted by lack of access to care (Lam et al., 1999; Nyamathi et al., 2000).

Among the 49,933 veterans who were homeless at one point in time in January 2014, more than one-third were living in an unsheltered situation. While this represents an almost 42% decrease in the number of unsheltered veterans between 2009 and 2014, the majority of veterans experiencing homelessness in five states were unsheltered, and more than two-thirds of those in three major cities—San Jose, Los Angeles, and Fresno, CA—were unsheltered (HUD, 2014a). These statistics are even more alarming given that the estimates of unsheltered veteran homelessness may be undercounts based on the methods used to enumerate this population (Hopper, Shinn, Laska, Meisner, & Wanderling, 2008).

While rates of unsheltered homelessness among veterans were exceedingly high in some states and communities, in 16 states fewer than 10% of veterans experiencing homelessness were staying in unsheltered situations, illustrating the wide variation in rates of unsheltered veteran homelessness across the country. Given the vulnerability of the unsheltered homeless population, the deleterious effects of living in an unsheltered situation, and the uneven geographic distribution of the unsheltered veteran population across the country, assessing the relationship between community-level characteristics and changes over time in rates of unsheltered homelessness is important.

Research examining the extent to which the size and scope of the social safety net explains geographic variation in rates of homelessness is of particular importance, as it may have direct
implications for how safety net resources should be allocated to address homelessness. Prior studies using community-level data have identified a number of components of the social safety net that may significantly impact rates of homelessness. Most saliently, increased federal spending on homeless assistance programs has been linked to decreased rates of homelessness at the community-level (Hudson, 1998; Moulton, 2013; Tucker, 1987, 1989), and communities that have invested more heavily in permanent supportive housing units have experienced steeper declines in chronic homelessness over time (Byrne, Fargo, Montgomery, Munley, & Culhane, 2014). More general features of the social safety net, including increased spending on alcohol, drug, and mental health services (Elliott & Krivo, 1991; Honig & Filer, 1993; Troutman, Jackson, & Ekelund, 1999) as well as higher Supplemental Security Income (SSI) and General Assistance benefit levels and recipient rates have also been found to have a significant relationship with decreased rates of homelessness (Burt, 1993; Honig & Filer, 1993; Raphael, 2010).

Although there is evidence that the social safety net may be influential in reducing rates of homelessness, there has been insufficient focus on the unsheltered veteran population. Not only is this a sizeable population, it is a population for whom specific financial, housing, and healthcare resources are dedicated through the U.S. Department of Veterans Affairs (VA). The objective of the present study is to assess the extent to which community-level indicators of investment in veteran-specific safety net resources—controlling for mainstream social programs as well as indicators of other social support within communities—are related to changes in the rate of unsheltered veteran homelessness over time (Rosenheck et al., 2001). We hypothesize that increased levels of social safety net investment in one year will lower rates of unsheltered veteran homelessness in subsequent years.

Methods

Sample

The study sample is a set of 231 geographic units, referred to as Continuums of Care (CoCs), which are organized around
providers of homelessness assistance. Each of the CoCs in the sample received federal homelessness assistance funding from HUD and provided point-in-time (PIT) counts of the numbers of individuals, including veterans, experiencing homelessness in their communities during 2009-2012. We included only metropolitan CoCs in the sample, based on the U.S. Department of Agriculture’s (USDA, 2014) Economic Research Service’s rural–urban continuum codes because of (1) the greater concentration of veterans experiencing homelessness in these communities, and (2) the lesser degree of missing data, particularly for cost and safety net variables.

Data and Measures

The objective of this study was to determine, using longitudinal data, the relationship between the volume of veteran-specific safety net services and a reduction in the rate of unsheltered homelessness among veterans across geographies over a four-year period. Each of these variables, described in the following sections, were measured either at the county or state level. CoC-level characteristics—other than local homelessness-specific housing inventory and homelessness rates—are nonexistent. Therefore, those variables measured at the county level were either summed or averaged across the counties included in a CoC, which was the unit of analysis for homelessness rates in the model presented here. A full explanation of this methodology is described elsewhere (Byrne, Munley, Fargo, Montgomery, & Culhane, 2012). For state-level variables, we assigned the same value to all CoCs within a state.

Dependent variables. As part of the strategic planning and application process for federal homeless assistance funding from HUD, CoCs must conduct PIT counts of persons experiencing homelessness within their jurisdictions on a single night during the last week of January. The count includes families and individuals who are living in both sheltered and unsheltered homeless situations and enumerates persons in specific homeless sub-populations, such as veterans and chronically homeless individuals. Using the PIT counts of persons experiencing homelessness for 2009 through 2012, we calculated the proportion of veterans in each CoC who were unsheltered.

Independent variables. We collected independent variables related to community and VA safety net services and other
descriptors of the social environment at the county or state level, including the following:

- Number of veterans and military service members in each CoC (U.S. Census Bureau, 2011);
- Proportion of counties in each CoC that are considered to be Health Professional Shortage Areas (HPSA) in which there is a deficiency of primary medical, dental, and mental health providers or facilities (Community Health Status Indicators Project Working Group, 2009);
- Average number of volunteer hours per resident (Corporation for National and Community Service and the National Conference on Citizenship, 2012);
- Proportion of individuals responding to the Behavioral Risk Factor Surveillance Survey (BRFSS) who have no social support (Centers for Disease Control and Prevention, 2008);
- Proportion of the population—including both children and adults—that is affiliated with a religious congregation (Association of Statisticians of American Religious Bodies, 2010);
- Proportion of income contributed to charity (Chronicle of Philanthropy, 2012);
- Number of non-profits per 1,000 individuals in the community (Chronicle of Philanthropy, 2012);
- Proportion of households living in poverty who were receiving SSI (U.S. Census Bureau, 2011);
- Per capita expenditures on Temporary Assistance to Needy Families (TANF) from federal funds (National Association of State Budget Officers, 2009);
- Ratio of the number of Section 8 or Housing Choice Vouchers to the number of households living in poverty (HUD, 2008);
- Proportion of total state expenditures that are directed toward Medicaid (National Association of State Budget Officers, 2009);
- Proportion of veterans receiving either VA compensation or pension payments (U.S. Census Bureau, 2011);
- Number of HUD-VA Supportive Housing (HUD-VASH) vouchers allocated to the community (HUD, 2014b); and
- VA's average annual expenditures for medical care
per veteran, which includes supportive services such as case management and homeless programs (VA, 2012).

Table 1. Data Sources and Descriptive Statistics for Study Variables (N=231)

<table>
<thead>
<tr>
<th>Year(s) Measured</th>
<th>Dependent Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Unsheltered veterans/homeless veterans (%)</td>
<td>24.9</td>
<td>28.0</td>
<td>14.0</td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td>27.9</td>
<td>28.6</td>
<td>13.2</td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td>30.0</td>
<td>27.4</td>
<td>22.2</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td>30.9</td>
<td>27.1</td>
<td>24.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year(s) Measured</th>
<th>Independent Variables</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2010*</td>
<td>Number of veterans in CoC (1,000 individuals)</td>
<td>41.6</td>
<td>42.3</td>
<td>30.8</td>
</tr>
<tr>
<td>2006-2010*</td>
<td>Number of military service members in CoC</td>
<td>849</td>
<td>3,514</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>Counties in CoC considered health professional shortage area (%)</td>
<td>2.0</td>
<td>8.0</td>
<td>2.0</td>
</tr>
<tr>
<td>2009-2010</td>
<td>Average volunteer hours (per capita)</td>
<td>34.1</td>
<td>7.8</td>
<td>34.1</td>
</tr>
<tr>
<td>2008</td>
<td>Individuals with no social support (%)</td>
<td>19.9</td>
<td>4.0</td>
<td>19.3</td>
</tr>
<tr>
<td>2010</td>
<td>Religious adherence (%)</td>
<td>47.9</td>
<td>4.0</td>
<td>47.2</td>
</tr>
<tr>
<td>2008</td>
<td>Income contributed to charity (%)</td>
<td>4.6</td>
<td>1.0</td>
<td>4.7</td>
</tr>
<tr>
<td>2009</td>
<td>Number of non-profits (per 1,000 individuals)</td>
<td>1.2</td>
<td>0.6</td>
<td>1.1</td>
</tr>
<tr>
<td>2009-2009*</td>
<td>Households in poverty receiving SSI (%)</td>
<td>31.1</td>
<td>8.2</td>
<td>30.5</td>
</tr>
<tr>
<td>2009</td>
<td>TANF expenditures (per capita)</td>
<td>$15</td>
<td>$19</td>
<td>$8</td>
</tr>
<tr>
<td>2008</td>
<td>Subsidized units/households in poverty (%)</td>
<td>24.7</td>
<td>11.1</td>
<td>23.2</td>
</tr>
<tr>
<td>2009</td>
<td>Medicaid spending/total state expenditures (%)</td>
<td>21.2</td>
<td>5.6</td>
<td>20.0</td>
</tr>
<tr>
<td>2005-2009*</td>
<td>Veterans receiving pension (%)</td>
<td>1.1</td>
<td>0.5</td>
<td>1.1</td>
</tr>
<tr>
<td>2009</td>
<td>Number of HUD-VASH vouchers</td>
<td>31.3</td>
<td>95.9</td>
<td>0.0</td>
</tr>
<tr>
<td>2009</td>
<td>Medicaid spending/total state expenditures (%)</td>
<td>63.5</td>
<td>136.9</td>
<td>35.0</td>
</tr>
<tr>
<td>2010</td>
<td>Veterans receiving pension (%)</td>
<td>92.3</td>
<td>178.5</td>
<td>35.0</td>
</tr>
<tr>
<td>2011</td>
<td>Average VA medical expenditures/veteran (in $1,000s)</td>
<td>114.2</td>
<td>211.2</td>
<td>60.0</td>
</tr>
</tbody>
</table>

Notes. *5-year estimates.

Data for the independent variables were collected for the time period as close to or prior to 2009 as possible using the best estimates available; we expected little variation from year to year among community-level variables. For veteran-specific independent variables that varied over time—HUD-VASH vouchers and VA medical expenditures—we obtained
data from the year previous to each year of study (2008-2011 inclusive), as we assumed that data for independent variables measured during the year prior to each PIT estimate of homelessness would have the most meaningful impact on homelessness rates in the following year (e.g., 2008 HUD-VASH vouchers would affect January 2009 PIT count of homeless veterans). Table 1 lists the full set of variables, the years of measurement, and descriptive statistics.

Statistical Analysis

We computed descriptive statistics for all study variables. We then developed a statistical model to evaluate the association between state- and community-level indicators of safety net services and rates of unsheltered homeless veterans among all homeless veterans. We selected a linear mixed-effects model to account for clustering due to: (1) longitudinal measures of homelessness rates and several of the safety net variables; and (2) CoCs nested within states. We included random intercepts at both the CoC and state levels and tested random slopes for all time-varying predictors included in the model (i.e., time, HUD-VASH vouchers, VA medical expenditures). Using the likelihood ratio test, we determined that random slopes did not significantly improve model fit. We controlled for the veteran population as well as the active duty military population working on bases located in each CoC. Analyses were conducted using the R environment for statistical computing (R Core Team, 2013). This study was approved by the Institutional Review Boards of Utah State University, the University of Pennsylvania, and the Philadelphia VA Medical Center.

Results

Results of the multilevel model are summarized in Table 2. Several predictors were significantly associated with geographic variation in the proportion of veterans experiencing homelessness who were staying in unsheltered situations. For instance, the proportion of religiously adherent individuals and the number of non-profits within a CoC were negatively associated with unsheltered veteran homelessness; there was, on average, a 2% decrease in unsheltered veteran
Table 2. Results of Multilevel Model for Rates of Unsheltered Veterans per CoC (N = 231)

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Estimate</th>
<th>SE</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>52.45</td>
<td>19.62</td>
<td>2.67</td>
<td>0.009</td>
</tr>
<tr>
<td>Time</td>
<td>0.57</td>
<td>0.97</td>
<td>0.59</td>
<td>0.554</td>
</tr>
<tr>
<td>Number of veterans in CoC (per 10,000)</td>
<td>-0.28</td>
<td>0.45</td>
<td>-0.62</td>
<td>0.539</td>
</tr>
<tr>
<td>Number of military service members in CoC (per 1,000)</td>
<td>0.17</td>
<td>0.55</td>
<td>0.31</td>
<td>0.757</td>
</tr>
<tr>
<td>Counties in CoC considered health professional shortage area (per 1% change)</td>
<td>-5.80</td>
<td>4.79</td>
<td>-1.21</td>
<td>0.227</td>
</tr>
<tr>
<td>Average volunteer hours (per 5 hours)</td>
<td>-0.92</td>
<td>1.38</td>
<td>-0.67</td>
<td>0.506</td>
</tr>
<tr>
<td>Individuals with no social support (per 5% change)</td>
<td>3.08</td>
<td>2.29</td>
<td>1.35</td>
<td>0.180</td>
</tr>
<tr>
<td>Religious adherence (per 5% change)</td>
<td>-2.12</td>
<td>0.83</td>
<td>-2.56</td>
<td>0.011</td>
</tr>
<tr>
<td>Income contributed to charity (per 1% change)</td>
<td>3.85</td>
<td>1.60</td>
<td>2.40</td>
<td>0.018</td>
</tr>
<tr>
<td>Number of non-profits (per 1,000 individuals)</td>
<td>-8.29</td>
<td>3.55</td>
<td>-2.34</td>
<td>0.020</td>
</tr>
<tr>
<td>Households in poverty receiving SSI (per 5% change)</td>
<td>-0.34</td>
<td>1.12</td>
<td>-0.30</td>
<td>0.762</td>
</tr>
<tr>
<td>TANF expenditures (per $100 change)</td>
<td>15.37</td>
<td>15.04</td>
<td>1.02</td>
<td>0.317</td>
</tr>
<tr>
<td>Subsidized units/households in poverty (per 1% change)</td>
<td>-2.86</td>
<td>16.28</td>
<td>-0.18</td>
<td>0.861</td>
</tr>
<tr>
<td>Medicaid spending/total state expenditures (per 5% change)</td>
<td>-2.38</td>
<td>2.14</td>
<td>-1.12</td>
<td>0.274</td>
</tr>
<tr>
<td>Veterans receiving pension (per 1% change)</td>
<td>-4.60</td>
<td>3.48</td>
<td>-1.32</td>
<td>0.188</td>
</tr>
<tr>
<td>Number of HUD-VASH vouchers</td>
<td>0.02</td>
<td>0.01</td>
<td>1.46</td>
<td>0.145</td>
</tr>
<tr>
<td>Average VA medical expenditures/veteran (per $1,000)</td>
<td>-7.03</td>
<td>2.18</td>
<td>-3.22</td>
<td>0.001</td>
</tr>
<tr>
<td>Time x Average VA medical expenditures/veteran (per $1,000)</td>
<td>1.26</td>
<td>0.50</td>
<td>2.52</td>
<td>0.012</td>
</tr>
</tbody>
</table>

homelessness with every 5% increase in religious adherence ($p = .011$) and for every additional non-profit per 1,000 individuals, unsheltered veteran homelessness dropped by an average of 8% ($p = .020$). Conversely, the rate of unsheltered
veteran homelessness increased by 4% for every 1% increase of charitable contributions within a community ($p = .018$).

There was a significant interaction between VA medical expenditures per veteran and time. As VA medical expenditures increased by $1,000 within a community, the rate of unsheltered veteran homelessness decreased. However, the strength of the association diminished over time, indicating that veteran medical expenditures had a larger effect on reducing unsheltered veteran homelessness in 2008, but less so through 2011.

**Discussion**

This study yielded mixed findings with respect to whether relatively more robust veteran-specific safety net resources in a community were associated with lower rates of unsheltered veteran homelessness. As hypothesized, we found that communities with higher VA medical expenditures per veteran had, on average, relatively fewer unsheltered veterans among their homeless veteran populations. This finding suggests that communities with relatively greater VA resources to provide medical care and supportive services may be better equipped to help unsheltered veterans get off and stay off the streets, depending on how these resources are allocated. Higher levels of medical care expenditures may indicate that more resources are directed to purposes that help unsheltered veterans access permanent housing or support formerly unsheltered veterans to remain permanently housed. These resources could be supporting expanded outreach efforts by the Health Care for Homeless Veterans program to identify unsheltered veterans and help them access permanent housing—potentially through the HUD-VASH program—or providing more intensive healthcare, case management, and other supportive services to maintain the housing stability of formerly unsheltered veterans who do move in to HUD-VASH or other permanent housing.

Alternatively, a higher level of per veteran VA medical care expenditures may not imply additional resources directed to purposes that are not directly geared towards helping veterans access permanent housing; rather, these resources may be allocated to increased spending on inpatient
hospitalizations or stays in short-term substance abuse treatment programs for veterans who might otherwise be on the streets. Unfortunately, the available data on VA medical care expenditures did not include any detail on how resources were allocated or expenditures made. Additional research is needed to better understand how and why increased VA medical care spending might translate into lower rates of unsheltered homelessness and, ideally, to assess whether spending specifically on VA specialized homeless programs might have an impact on veteran homelessness.

While the finding with respect to the measure of VA medical care expenditures was in line with expectations, the lack of significant associations between unsheltered veteran homelessness and both VA pension receipt and HUD-VASH voucher allocation was unexpected. The HUD-VASH finding is particularly noteworthy, especially in light of the substantial reductions in recent years in the number of homeless veterans in unsheltered situations. Since 2008, both VA and HUD have made significant investments in HUD-VASH, which provides a deep rental subsidy through HUD's Housing Choice Voucher program combined with supportive medical, behavioral, and mental healthcare provided at VA facilities across the country. High need, chronically homeless veterans, many of whom are unsheltered, are a priority population for the HUD-VASH program; it is surprising that we did not find evidence of a relationship between HUD-VASH voucher allocations and the share of the homeless veteran population living in unsheltered situations. This may imply that HUD-VASH vouchers have been targeted to the segment of the chronically homeless veteran population who are not unsheltered but are living in residential homeless assistance programs, particularly those operated or funded by the VA. It is likely that these veterans are easier to identify and enroll in the HUD-VASH programs than their unsheltered counterparts, who are often more difficult to engage.

It is also noteworthy that measures of more general safety net resources and the social environment were found to have significant associations with the rate of unsheltered veteran homelessness. It is difficult to draw firm conclusions from the specific relationships that were identified but, taken together, they suggest that the broader service environment
in a community is an important determinant of the extent to which homeless veterans remain unsheltered. This points to the potential value of the VA working in concert with other service systems to help address unsheltered veteran homelessness. In this respect, recent efforts by the VA, including the Supportive Services for Veteran Families program and the 25 Cities Initiative, which involve partnerships with community-based agencies, city governments, and local housing authorities to address veteran homelessness, should be seen as positive developments.

Apart from its substantive findings, this study makes an important methodological contribution to the existing body of research. Specifically, while previous studies have examined community-level determinants of the overall rate of homelessness—as well as rates of family, individual, and chronic homelessness—the present study represents, to our knowledge, the first attempt to examine community-level determinants of veteran homelessness. As the measures used in this study are all publicly available, there is ample opportunity for future research to build on this study to improve understanding about how community-level factors may have an impact on veteran homelessness, and in turn to inform interventions to address these factors.

This study has a number of limitations that are important to acknowledge. First, the analysis was limited to urban jurisdictions and, therefore, the findings cannot be generalized to non-urban locations. Second, enumerating the number of homeless veterans living in unsheltered situations is a challenging process. While communities are required to use a methodological approach that meets guidelines established by HUD, communities nonetheless employ enumeration methods that have a range of methodological rigor and may alter these methods from year to year, which likely influenced the findings of this study, although the extent of this influence is impossible to determine. Finally, while data on VA medical care expenditures were available for the present study, data on VA expenditures specifically for homeless assistance programs were not. As such, it was not possible to assess whether resources directed exclusively to addressing veteran homelessness had their desired impact, although this remains an important question to address.
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References


