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Cognition, Health, and Social Support of Formerly Homeless Older Adults in Permanent Supportive Housing

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Abstract

Background and Objectives: Formerly homeless older adults residing in Permanent Supportive Housing (PSH) represent an invisible subsector of two distinct, yet related populations: the homeless population and the elderly population. Little research is focused on the complex health concerns facing this aging population within the homelessness response system. Of particular concern is the identification and support of individuals with cognitive impairment and co-occurring chronic conditions. We collaborated with a leading housing services provider to develop a systematic screening system for case managers to capture the cognitive, physical, and psychosocial health of older adults served within homeless housing programs.

Research Design and Methods: PSH residents aged ≥ 50 years in four sites screened as being without cognitive impairment on the Mini-Cog were enrolled. A brief demographic survey and selected PROMIS measures were used to characterize participants' demographics, cognition, global physical and mental health, physical functioning, self-efficacy for social interactions, and instrumental support. PSH case managers were trained to recruit participants and collect data. PROMIS scales were scored using the Health Measures Scoring Service. Descriptive statistics, correlations, and one sample *t*-tests were performed.

Results: Fifty-three residents (mean age = 60.8 years, range 50–76 years) participated. The majority self-identified as male and were military veterans; 60% reported having a history of two or more episodes of homelessness. All PROMIS scores were significantly ($p < .05$) lower than reference U.S. population means, with global mental health and cognition having the lowest scores.

Discussion and Implications: Self-reported cognitive functioning and global mental health were residents' greatest concerns. Strengthening housing case manager capacity to assess residents' cognitive and health status could increase support for older adults in PSH. It is feasible to train PSH staff to conduct structured interviews to identify resident cognitive and health needs to help support this "invisible" population to successfully age in place.

Translational Significance: There is a scarcity of information regarding effective strategies to meet the multi-faceted needs of older formerly homeless adults in permanent supportive housing (PSH). This study provides new information about an approach to screening for cognitive, physical, and psychosocial conditions relevant to PSH residents. There is a clear need to develop assessment and intervention models that will enhance aging-in-place services and research for better understanding this vulnerable population.

Keywords: Access to and utilization of services, Case management, Cognition, Geriatric conditions, Homelessness

Background and Objectives

Older homeless adults sit at the nexus of two related, yet disconnected, policy, resource, and service delivery systems. Neither the homelessness response system—by definition and design a crisis response system—nor the aging/long-term care systems have fully engaged with understanding and responding to the evolving needs of this rapidly growing population (1). There are many challenges facing older homeless adults. These individuals are medically, socially, and functionally vulnerable, and their complex and evolving needs are often left unaddressed.

When matched for mental and physical disability, a homeless 50 year old is equivalent to the profile of a housed 80 year old (2). Chronic medical problems and functional impairment are common (2–4). In one population-based sample of 350 older homeless adults in Oakland, California, Brown and colleagues (2) reported high rates of cognitive impairment (25.8%), falls (33.7%), incontinence (48.0%), and vision impairment (45.1%). Hurstak and colleagues (5) found cognitive impairment to be highly prevalent in a population of older homeless adults. In the sample of 350 homeless adults over the age of 50, 25.1% showed evidence of global cognition while another 32.9% showed significant impairment in executive functioning. Their results indicated that for homeless adults, cognition was significantly impacted and occurred far younger than the general population. Older homeless individuals also have increased emergency room visits as well as significantly lower cognitive health, greater psychiatric morbidity, and impaired functional status (5,6).

The immediate need for older adults experiencing homelessness is attainment of housing, a direct determinant of health (7). Homeless adults seek and receive support across the continuum of the homelessness response system, including outreach services, day programs, emergency shelters, hygiene centers, transitional housing, and permanent supportive housing (PSH). PSH ends chronic homelessness for over 370,415 individuals each year (8). PSH provides community-based living paired with supportive services and long-term leases, and it is a targeted model of subsidized housing tailored for individuals who have experienced chronic homelessness. Nationally 30% of PSH residents are over the age of 50 and represent a growing demographic with unique challenges. Between 2010 and 2016, the number of people in PSH over age 50 grew by 13% (8).

Housing options such as PSH, however, are in very limited supply, particularly in high-density areas. For this reason, many cities have utilized screening measures to identify and triage available units to the individuals who are most in need. One example is the Vulnerability Index-Service Prioritization Decision Assistance Tool (VI-SPDAT) (9). Originally designed by medical professionals working with unsheltered homeless persons, the VI-SPDAT uses detailed survey data to assess mortality risk, which is then used to assign a ranking that prioritizes housing access.

This tool measures an individual's vulnerability across multiple domains including age, length of time homeless, and physical and mental disability (10,11).

The VI-SPDAT was not designed for, nor is it used for the purpose of screening or assessing for service needs—it is strictly used to prioritize a person for access to housing resources (particularly PSH) available through the local homeless service delivery system. In Seattle, and in a growing number of cities across the country, there is increased recognition of the limitations of using this tool exclusively to guide such important and complex decisions—examples include inconsistent responses, and racial disparities in service access based on score results (12).

There is also concern that the VI-SPDAT is not sufficient as an intake tool at the case management level in PSH settings. Available PSH units are targeted for those who score as highly vulnerable on the VI-SPDAT; adults age 60+ with a history of chronic homelessness often meet the high vulnerability threshold. However, housing options that are available for persons identified using the VI-SPDAT or other similar vulnerability assessments often do not address the myriad complex needs that have identified them as vulnerable and prioritized them for housing. This is particularly true for older adults who are entering PSH after experiencing homelessness.

All units in PSH are based on single adult occupancy while also assuming independent, autonomous functioning of each resident. Case management support in these settings varies widely amongst organizations but primarily focuses on addressing underlying barriers to housing such as substance abuse, inadequate income, and employment gaps. Although older adults may share these common barriers to housing, they generally are not going to be employable and their chronic health conditions may impact their ability to independently navigate the confounding array of external social and health services. To secure additional services and supports, individuals must wait in long lines, navigate referrals, submit extensive and complex paperwork, and proactively advocate for themselves (13). This extensive engagement to secure resources is often beyond the reach of older adults in PSH. Older individuals who need additional support may also have a limited social network of friends and family to provide it (14). For older adults, their trajectory and tenancy in housing will require long-term support around issues of physical and mental health that are often not a routine part of services in PSH.

Unlike other human service systems such as medical healthcare, the priority focus in the homelessness service system is housing stability—assisting people to access housing and providing services that achieve housing retention and stability (15). Once housed, support staff work to identify access and link clients to other supports, such as medical services. Although PSH residency can eliminate housing instability, it does not address the greater physical, mental, and psychosocial needs specific to the aging population. Unfortunately,

there are not good housing alternatives available, either within the homeless service system or through external support agencies. Most formerly homeless older adults in PSH do not meet functional requirements for nursing home placement. For those who are eligible for nursing homes, the beds are few, the wait is long, and their interim care defaults to housing providers who are not trained or resourced in a way to meet their needs (2). These housing service providers are challenged to identify supportive services for aging clients within existing community-based programs, which are tailored to more resourced older individuals with identified family caregivers (1,4).

Currently, there is a dearth of information to guide housing staff in assessing the cognitive, medical, and psychosocial health of their residents. A systemized approach to assessment that will assist housing staff to better identify resident needs and tailor service approaches is needed. The ability to age in place, a philosophy that is gaining attention in the gerontological field and aging policy, emphasizes the connection between aging individuals and their familiar home and community (16) but eludes this vulnerable population (17).

The aim of the current study was to develop a community-academic partnership to assist community providers in collecting previously unavailable cognitive, medical, and psychosocial data on adults over age 50 living in PSH. A community and academic partnership was launched to develop and integrate a systematic data collection process into the standard operating procedures of local nonprofit PSH providers. Such data may help identify gaps and limitations in current provisions of care and support for homeless older adults, ultimately informing cities, counties, and states about critical questions underlying the current homelessness crisis (18) as well as national policy discussions about housing older homeless and formerly homeless adults (19).

Research Design and Methods

This study was part of a unique partnership between university researchers and a local leading nonprofit services provider in Washington State that offers a spectrum of programs across a continuum of emergency services through affordable housing units for homeless and low-income adults and families. This community-academic collaboration provided both parties with opportunities to generate new knowledge regarding service needs for vulnerable homeless older adults. Human subject approval for the study was obtained from the Internal Review Board of University of Washington prior to study recruitment and data collection.

Project Start-up and Staff Training

Four sites were identified for the study. These sites were chosen because they offered supportive housing programs with on-site resident services, and they served a resident

population of formerly *chronically homeless* older adults, defined by the United States, Department of Housing and Urban Development (HUD) as being individuals with a disability who have experienced continuous homelessness for 12 months or more, or have experienced 4 or more episodes of homelessness over the prior 3 years (total needs to add to 12 months or more) (15). Residents attained housing at these sites through a coordinated entry program that covers King County, and is operated by King County staff in accordance with HUD standards.

To understand the dynamics at these four sites including the staffing structure (i.e., staff levels, caseloads, and roles), and to build support for the rollout of the study, the project began with a series of meetings with staff at each site. Data collection was intended to be ultimately incorporated into the standard case management system at each site; hence, insights and collective support of the entire team was essential in order to smooth introduction of this systematic change to routine programmatic operations. It was decided after these meetings that one to two case managers at each site would be designated to conduct interviews and collect health information. Although only selected case managers collected data included in this paper, all staff at each PSH site were involved in helping design the data collection process and were kept informed of study progress to facilitate its ongoing support and long-term sustainability.

Sample Recruitment

PSH residents ages 50 and older were invited to participate. At each of the four study sites there is access to case management services, but residents are not required to engage or participate in services. Residents who did engage in services and who were over the age of 50 were informed of the study and that a new resident data collection process was being implemented at their location. Residents were allowed to opt out if they wished to do so.

To ensure that study participants were capable of accurately recalling events from the prior 7 days and providing valid responses, the Mini-Cog (20) was used to assess short-term memory issues. Case managers at the partnering agency were highly skilled in working with residents but had limited experience conducting interviews designed to gather health information, especially around issues of cognitive capacity. The Mini-Cog is a brief, widely used, and validated cognitive screening measure that is easy to administer with training. It has been recommended as a suitable instrument for routine dementia screening in primary care and with older adults living in a variety of residential care settings (21,22).

The Mini-Cog assesses short-term memory and asks individuals to recall three words, and there are six word set options available to reduce practice effects with repeated administration. It is important to note that the Mini-Cog was not developed specifically for use with individuals who have experienced homelessness or with populations that

have significant trauma histories. The word sets were carefully reviewed in early meetings with the PSH staff. Staff thought that several words (i.e., baby, captain, heaven) could trigger traumatic responses and chose to only use banana, sunrise, and chair from the recall word set options, as these words were thought to be neutral and would not evoke strong emotional responses from participants.

PSH residents who expressed interest in the new data collection program, had a Mini-Cog score of 4 or greater, and provided informed consent, were enrolled as study participants and participated in an additional interview that was intended to last less than 30 min. Participants received a \$7.50 gift card to compensate for their time. The incentive rate was chosen to be consistent with the \$15 minimum hourly wage set in 2015 in the city of Seattle.

Measurements and Data Collection

To ensure the selected measures could be easily integrated into their standard case management services, case managers assisted in identifying key areas of measurement focus guided by their anecdotal experience of working with older adult residents. In addition to the Mini-Cog, five Patient Reported Outcomes Measure Information System (PROMIS) measures (23,24) were collected to characterize the self-rated cognition, mental and physical health, and social support of participating older adult PSH residents (Table 1). PROMIS measures were developed and psychometrically validated for use in both the general population as well as for persons living with chronic conditions. They have been used extensively with diverse community-based populations; have high acceptability, reliability, and validity; and are easily administered by trained individuals (23). Additional items were added for demographic data (age, sex, education, veteran status) and number of times residents had experienced homelessness. Interviews

occurred immediately after the residents' eligibility was confirmed with the Mini-Cog screening and the consent form was signed.

To reduce common method biases (25), several interview procedural strategies were used. Special attention was taken in early meetings with staff to review measures and get feedback on their application within the PSH service population. Because residents varied in reading literacy and familiarity with English, all measures were collected in an interview format (vs self-administration). Additionally, participants were given response cards with appropriate ratings for each PROMIS measure so they could point to their selection and ask questions about any items that they did not understand. To mitigate challenges with impaired vision and hearing, case managers conducted interviews in well-lit private meeting spaces that were quiet and free from external interruptions. Response cards were printed in large font on high contrast card stock.

Data Collection Training

A staggered site-by-site roll-out was used, a strategy designed to help us quickly identify problems with data collection and to improve fidelity of training methods. This was especially useful in the early stages of the rollout to standardize Mini-Cog scoring. At each site, the principal investigator (AMS) led a 2-hr training for participating case manager interviewers. It started with an introduction to common older adult health concerns, followed by descriptions of the assessment measures and the proposed process for integrating assessments into their standard resident evaluation and care procedures. Training included practice administering all questionnaires, documenting the results, and comparing to a demonstrated training standard. Training materials included an assessment manual and practice sheets with examples of typical and

Table 1. Quantitative Measures to Characterize Older Adult Residents in Permanent Supportive Housing

| Study variable | Study measure | Description (Cronbach's alpha)* |
|--|--|---|
| Cognition | Mini-Cog | Brief, cognitive impairment screening tool (score 0–5; participants scoring <4 were ineligible to participate) |
| Global Physical Health | PROMIS Scale v1.2-Global Health | 4-item measure of global physical health regarding physical functioning, pain, and fatigue ($\alpha = 0.66$) |
| Global Mental Health | PROMIS Scale v1.2-Global Health | 4-item measure of global mental health regarding quality of life, emotional distress, and social health ($\alpha = 0.78$) |
| Physical Functioning | PROMIS Item Bank v1.0 Physical Functioning with Mobility Aid-SF | 11-item measure of physical functioning in everyday activities ($\alpha = 0.90$) |
| Self-Efficacy for Managing Social Interactions | PROMIS Item Bank v1.0-Self-Efficacy for Managing Social Interactions-SF 8a | 8-item measure of self-efficacy over social interactions ($\alpha = 0.83$) |
| Instrumental Support | PROMIS Item Bank v2.0 Instrumental Support | 8-item measure of personal assistance needed to complete daily activities ($\alpha = 0.94$) |
| Cognition | PROMIS Item Bank v2.0- Cognitive Function Abilities-SF 4a [†] | 4-item measure of cognitive functional abilities ($\alpha = 0.94$) |

Note: *Cronbach's alphas are from the current study. [†]All PROMIS measures are rated on a 5-point scale. Summary scores are calculated using the HealthMeasures Scoring Service (www.healthmeasures.net).

atypical responses. Key management staff participated in trainings along with staff to demonstrate agency support and to help facilitate sustained use of the new screening procedures. The four study implementation sites integrated the assessments into their standard care procedures immediately following the training. The trainer was available to consult directly with staff following training on an as-needed basis, and met in person and over the phone with staff weekly to insure that the process was rigorous and standardized across all sites.

Data Analysis

Analyses included descriptive statistics to assess response distributions and missing data patterns as well as internal consistency of the instruments with the study sample. The PROMIS scales were scored using the HealthMeasures Scoring Service (www.healthmeasures.net), which is funded by the National Institutes of Health. Univariate data and graphical analysis were used to provide a description of the sample. One-sample *t*-tests were performed to compare the sample mean of each PROMIS scale to the reference U.S. population mean provided by PROMIS based on 2000 census data. Correlations among PROMIS measures, age, and times of experiencing homeless prior to attaining current residence were examined.

Results

Seventy-six PSH residents were approached for the study. Twenty-three (30.3%) were excluded because of a low Mini-Cog score (≤ 3). Fifty-three PSH residents meeting the sampling criteria were in the final sample. Residents ranged from 50 to 76 years of age. They predominantly self-identified as male, were high school graduates, were military veterans, and had been homeless on more than one occasion (Table 2). The interview were timed and took less than 15 min ($M = 12.3$ min, $SD = 6.5$).

Clinical Assessment Results

Internal consistency of the PROMIS measures with this population was examined (Table 1). All PROMIS scale means were significantly ($p < .05$) below 50, the U.S. population mean based on 2000 census data (Table 3). Notably, global mental health and cognitive scales had means of 41.3 and 42.3, respectively, and were almost one standard deviation ($SD = 10$) below the population mean. Global mental health and cognition were positively correlated ($r = .34, p = .01$).

None of the PROMIS measures were significantly correlated with age or number of times homeless. Physical functioning was significantly correlated with global physical health ($r = .68, p < .001$) but not with global mental health ($r = .15, p = .30$). Global physical health and global mental health were significantly correlated ($r = .50, p <$

Table 2. Characteristics of Participant Residents ($N = 53$)

| | No. (%) |
|---------------------------|------------|
| Characteristic | |
| Age, mean (<i>SD</i>) | 60.8 (6.3) |
| Male | 46 (86.8) |
| Veteran | 43 (81.1) |
| Education | |
| High school no diploma | 1 (1.9) |
| High school diploma | 9 (17.0) |
| General education diploma | 8 (15.1) |
| Post-high school | 35 (66.0) |
| Number of times homeless* | |
| One | 19 (35.9) |
| Two | 13 (24.5) |
| Three or more | 19 (35.9) |

Note: Percent totals may not add to 100% because of missing data. *Participants were asked “How many times have you been homeless prior to attaining your current housing?”

Table 3. PROMIS Scales T-Scores for Participant Residents ($N = 53$)

| Scale | Mean (<i>SD</i>) | Minimum | Maximum | <i>p</i> * |
|--|--------------------|---------|---------|------------|
| Global health—physical | 43.4 (8.3) | 26.5 | 61.6 | <.001 |
| Global health—mental | 41.3 (9.2) | 21.3 | 62.4 | <.001 |
| Physical functioning | 46.5 (9.2) | 28.7 | 55.9 | .01 |
| Self-efficacy for managing social interactions | 45.4 (7.8) | 31.0 | 59.8 | <.001 |
| Instrumental support | 43.7 (10.6) | 27.4 | 64.8 | <.001 |
| Cognition | 42.3 (8.8) | 25.0 | 61.1 | <.001 |

Note: Higher scores indicate higher functioning. A *T*-score distribution has a mean of 50 and standard deviation of 10. A 50 score here is the mean of the U.S. general population based on 2000 census data.

**p* value from one-sample *t*-test compared to reference population mean of 50.

.001). Self-efficacy for managing social interactions and instrumental support were correlated at $r = .52$ ($p < .001$). Self-efficacy for managing social interactions was significantly correlated with global physical health ($r = .41, p = .003$) but not with global mental health ($r = .26, p = .06$). Instrumental support was significantly correlated with global mental health ($r = .38, p = .006$) but not with global physical health ($r = .14, p = .30$).

Discussion and Implications

Nationally, data indicates that emergency service programs, particularly shelters are increasingly serving an older population with the average age of clients being 50 years or older (26–28). This is true across the continuum of homeless services, with housing programs increasingly reflecting an “aging of homelessness” phenomenon that was first

recognized over a decade ago (27). This study was designed to begin to address important knowledge gaps by assisting community partners in collecting previously unavailable cognitive, medical, and psychosocial data on adults over age 50 living in PSH.

This study demonstrated the capacity for collecting cognitive, physical and mental health, and social support data by case management providers in PSH serving older adults. We observed a high prevalence of both objective and self-perceived cognitive problems. Almost one third of PSH residents approached for the study were found cognitively impaired on the Mini-Cog screening. Among those deemed not cognitively impaired, residents endorsed more concerns about cognitive functioning than the general U.S. adult population. It is worth noting that some residents declined to participate. According to case managers who conducted screening and data collection, many of these individuals would likely have not passed the Mini-Cog screening. This field observation suggests that the numbers of individuals living in PSH with cognitive impairment may be greater than is generally recognized.

Global mental health in our study sample was also lower than the general U.S. adult population, as were ratings of social support and physical health. These findings, compared to national reference scores, are not surprising for this population and are consistent with other studies (2,6,29), highlighting the vulnerability of formerly homeless older adults in PSH settings. The impact of social support on mental and physical health has been well described (30). Although a relatively vast array of services and tailored approaches have been developed to assist the wider population of older adults through aging service organizations, PSH residents do not have access to many of them. This study's findings on cognition, health, and social support together call for further examination of housing service models and policies aiming to end homelessness, including policies that assume independent, autonomous functioning of PSH residents and give priority on housing stability to the exclusion of any services focused on health needs or service that are critical to help older adults age in place.

Practice Implications

Our findings indicate that homeless service providers are very likely to encounter cognitive impairment amongst their clients. Staff who do not recognize cognitive impairment in residents may mistakenly attribute problematic behaviors in residents as willful refusal to adhere to community household rules or to follow through with treatment recommendations (e.g., medical appointments), rather than symptoms of executive dysfunction and memory loss common in cognitive decline. Staff could overestimate the residents' ability to manage their physical and psychosocial needs independently.

Unfortunately, standard housing service intakes often do not provide a complete assessment of individuals' cognitive, mental health, physical wellness, and social support networks. For example, intake procedures at programs participating in the current study did not previously routinely include a standard cognitive screening tool. This study led to the sites integrating the Mini-Cog screening and PROMIS measures into their routine assessment process, including conducting follow-up interviews to monitor changes over time. This could be particularly important for residents who initially passed the Mini-Cog screening but endorsed subjective concerns on the PROMIS cognition measure. Additional dementia education for staff focused on the unique concerns of homeless older adults, the signs and symptoms of cognitive impairment, and the development of evidence-based, individualized case management strategies for dealing with individuals across the cognitive continuum is planned.

Strengths and Limitations

Several limitations to the current study are noted. Assessments were only conducted at four supportive housing sites that were operated by a single housing provider, and conclusions about such may not be generalizable to all PSH residents. However, all residents entered into these settings from a county run system that prioritizes housing based on bed availability across all housing units in the area. The community partner's PSH programs that participated in this study included two sites that received funding from the U.S. Department of Veterans Affairs and that specifically served formerly homeless veterans. Although it is likely our sample was relatively representative of the local population of chronically homeless and nonveteran individuals, additional research is needed to understand how PSH organizations and the populations they service are similar and different nationally.

Standardized instruments were not used to collect resident demographic data, although case managers did ask about their history of homelessness using wording consistent with the HUD standard definition of chronic homelessness. Resident racial/ethnic characteristics were not collected, nor were data collected regarding PSH case manager interviewers, because the participant PSH sites declined to provide this information. Future research would benefit from gathering these data but must recognize site sensitivities surrounding private demographic information for residents and staff as well as detailed agency information about participating sites.

Only residents screened as cognitively intact participated in the additional PROMIS interviews to ensure that self-report ratings were not affected by memory loss. This limitation does not allow us to compare Mini-Cog results to the PROMIS cognitive self-report data. When the study ended, sites were considering inviting all residents

to complete the PROMIS measures regardless of their Mini-Cog scores. Unfortunately, funding for this 1-year study did not include support for ongoing screening follow-up and fidelity monitoring by the academic partner at implementation sites.

Despite limitations, strengths of this study are noteworthy. First, the collaborative approach of this study yielded process insights that contributed to its success and the sustainability for the sites. Site case managers were an integral part of the research team. Sites reported that the use of case managers who the resident trusted, rather than university research staff to conduct recruitment and data collection increased the completeness and quality of the data collected, compared to previous academic on-site studies that had relied upon research staff. Second, eliciting input from PSH staff regarding use of the Mini-Cog screening and PROMIS data collection with residents that have significant trauma histories may have increased participation as well as staff buy-in to the assessment process. Lastly, the study demonstrates the value of academic-community partnerships in developing evidence-based, sustainable programs that address the needs of vibrant human service communities that are continuously evolving in the face of changing political and financial circumstances.

Policy Implications

Although not directly tied to data presented in this study, this collaborative community-academic partnership helps shine a light on a growing, but largely overlooked, human crisis. The homeless service delivery system is based on an extensive, diverse network of human service, and housing agencies. It disperses across thousands of communities, large and small, in every state of the nation. These agencies, with few exceptions, have limited or no experience with delivering services tailored to serve the needs of aging adults, particularly adults with dementia or other cognitive impairments. An investment in integration of an evidence-based set of cognitive, mental and physical health, and social support assessment tools in PSH settings would be beneficial to supporting successful aging-in-place among these highly vulnerable older adults. We believe that policy implications of the current study center on three areas:

1. Addressing the “housing plus services” need for the rapidly growing aging population that has experienced homelessness.

Current research shows that:

- People 50+ in age constitute more than 30% of the nation’s homeless population, and this is an increasing trend (8).
- Homeless adults aged 50+ have higher rates of mortality and significant chronic health problems, including cognitive impairments (28).

- Homeless persons age prematurely, in part due to the impacts of prolonged exposure to stressors, leading to “weathering” impacts (28).

Housing programs that serve persons experiencing homelessness are not resourced or staffed appropriately to effectively deliver services tailored to their unique needs—yet these programs are foundational to both personal stability and improved health outcomes.

2. Strengthening the capacity of organizations that serve vulnerable/older populations in order to more effectively serve the evolving needs of this growing segment population.

The homeless service delivery system is based on a large number of diverse nonprofit human service and housing agencies. These organizations, with few exceptions, have limited or no experience with delivering services tailored to serve the needs of aging adults, particularly adults with dementia or other cognitive impairments. An important benefit to this investment in capacity will be the long-term effectiveness and viability of the sector.

3. Informing policy development that impacts the resources and practices serving this currently underserved population.

Mainstream programs finance everything from health care to housing to basic income supports. These public sector resources are a critical part of the social safety net, ensuring the survival and basic quality of life for tens of millions of people, including older adults who have experienced homelessness or who are at risk of becoming homeless. There is significant value to ensuring that resource decisions and operational policies are designed to maximize the quality of life for individuals with the greatest needs.

Summary

This study highlights the need for further research to understand the state of homeless older adults’ cognition as well as their physical, mental, and social support needs. Partnering community and academic organizations can lead to systematic evaluation of relevant assessment and intervention protocols in PSH settings, as well as better understanding of PSH client outcomes and cost-benefits to agencies. Ultimately, future research on how to integrate cognitive, physical and mental health assessment and monitoring as well as dementia training in outreach services, day programs, emergency shelters, hygiene centers, and transitional housing will strengthen our capacities to better serve homeless older adults.

In conclusion, this study demonstrated that it is feasible to develop a systematic intake system for case managers to assess the cognitive, physical, and psychosocial status of older adults served within homeless housing programs.

Data demonstrating the high rates of cognitive impairment, physical and mental health difficulties, and poor psychosocial support in this population have numerous clinical practice and public policy implications that should be considered by local communities and national delivery systems (1).

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Conflict of Interest

None reported.

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References

- Culhane DP, Metraux S, Byrne T, Stino M, Bainbridge J. The age structure of contemporary homelessness: Evidence and implications for public policy. *Anal Soc Iss Pub Pol*. 2013;13:228–244. doi:10.1111/asap.12004
- Brown RT, Hemati K, Riley ED, et al. Geriatric conditions in a population-based sample of older homeless adults. *Gerontologist*. 2016;11:1–10. doi:10.1093/geront/gnw011
- Garibaldi B, Conde-Martel A, O'Toole TP. Self-reported comorbidities, perceived needs, and sources for usual care for older and younger homeless adults. *J Gen Intern Med*. 2005;20:726–730. doi:10.1111/j.1525-1497.2005.0142.x
- Seattle & King County Public Health. Integrating health and housing solutions for older homeless and formerly homeless King County residents: A proposed roadmap for averting an approaching crisis. 2016; <http://www.kingcounty.gov/depts/health/locations/homeless-health/~/media/depts/health/homeless-health/healthcare-for-the-homeless/documents/Integrating-Health-and-Housing-Solutions-for-Older-Homeless.ashx>. Accessed May 4, 2019.
- Hurstak E, Johnson JK, Tieu L, et al. Factors associated with cognitive impairment in a cohort of older homeless adults: Results from the HOPE HOME study. *Drug Alcohol Depend*. 2017;178:562–570. doi:10.1016/j.drugalcdep.2017.06.002
- Joyce DP, Limbos M. Identification of cognitive impairment and mental illness in elderly homeless men: Before and after access to primary health care. *Can Fam Physician*. 2009;55:1110–1111.e6. PMID: PMC2776807.
- Dunn JR, Hayes MV, Hulchanski JD, et al. Housing as a socio-economic determinant of health: Findings of a national needs, gaps and opportunities assessment. *Can J Pub Health*. 2006;97(Suppl 3):S11–5, S12. PMID: 17357542.
- U.S. Department of Housing and Urban Development. 2016 Annual Homeless Assessment Report (AHAR) to Congress. Part 2: Estimates of homelessness in the United States. 2017; <https://www.hudexchange.info/resources/documents/2016-AHAR-Part-2.pdf>. Accessed May 12, 2019.
- King BT. *Assessment and findings of the Vulnerability Index (VI-SPDAT) survey of individuals experiencing homelessness in Travis County, TX [UT School of Public Health Dissertation] (Open Access)*. 2018;11. https://digitalcommons.library.tmc.edu/uthsph_dissertopen/11. Accessed June 18, 2019.
- Focus Strategies. Seattle/King County: Homeless system performance assessment and recommendations with particular emphasis on single adults. 2016; <https://www.seattle.gov/Documents/Departments/pathwayshome/FS.pdf>. Accessed May 22, 2019.
- United Way of King County. Seattle/King County: Homeless system performance assessment and recommendations with particular emphasis on single adults. 2016; <http://www.seattle.gov/Documents/Departments/pathwayshome/FS.pdf>. Accessed May 22, 2019.
- King County Department of Community and Human Services. Interim prioritization FAQ for providers. 2019; <https://www.kingcounty.gov/depts/community-human-services/housing/services/homeless-housing/coordinated-entry/Interim%20Prioritization%20FAQ%20For%20Providers.aspx>. Accessed May 22, 2019.
- Gonyea JG, Mills-Dick K, Bachman SS. The complexities of elder homelessness, a shifting political landscape and emerging community responses. *J Gerontol Soc Work*. 2010;53:575–590. doi:10.1080/01634372.2010.510169
- McDonald L, Donahue P, Janes J, Cleghorn L. Understanding the health, housing, and social inclusion of formerly homeless older adults. Finding home: Policy options for addressing homelessness in Canada. 2009; <http://homelesshub.ca/sites/default/files/2.5%20McDonald%20et%20al.%20-%20Formerly%20Homeless%20Older%20Adults.pdf>. Accessed May 21, 2019.
- U.S. Department of Housing and Urban Development. Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH): Defining “chronically homeless” final rule. 2015; <https://www.hudexchange.info/resource/4847/heartth-defining-chronically-homeless-final-rule/>. Accessed May 22, 2019.
- Wiles JL, Leibing A, Guberman N, Reeve J, Allen RE. The meaning of “aging in place” to older people. *Gerontologist*. 2012;52:357–366. doi:10.1093/geront/gnr098
- Padgett DK, Bond L, Gurdak K, Henwood BF. Eliciting life priorities of older adults living in permanent supportive housing. *Gerontologist*. 2019. doi:10.1093/geront/gnz040
- Seattle/King County Coalition on Homelessness. King County One Night Count; 2016. <http://allhomekc.org/wp-content/uploads/2015/09/2016-KC-ONC-numbers.pdf>. Accessed May 18, 2019.
- United States Interagency Council on Homelessness. What about Maria? We need a federal plan more focused on homelessness among older adults. 2019; <https://www.usich.gov/news/>

- [what-about-maria-we-need-a-federal-plan-more-focused-on-homelessness-among-older-adults/](#). Accessed June 2, 2019.
20. Borson S, Scanlan JM, Chen P, Ganguli M. The Mini-Cog as a screen for dementia: Validation in a population-based sample. *J Am Geriatrics Soc.* 2003;51:1451–1454. doi:10.1046/j.1532-5415.2003.51465.x
 21. Brodaty H, Low LF, Gibson L, Burns K. What is the best dementia screening instrument for general practitioners to use? *Am J Geriatric Psychiatry.* 2006;14:391–400. doi:10.1097/01.JGP.0000216181.20416.b2
 22. Setter SM, Neumiller JJ, Johnson M, Borson S, Scanlan JM. The Mini-Cog: A rapid dementia screening tool suitable for pharmacists' use. *Consult Pharm.* 2007;22:855–861.
 23. Cella D, Riley W, Stone A, et al. The Patient-Reported Outcomes Measurement Information System (PROMIS) developed and tested its first wave of adult self-reported health outcome item banks: 2005–2008. *J Clin Epidemiol.* 2010;63:1179–1194. doi:10.1016/j.jclinepi.2010.04.011
 24. Hays RD, Bjorner JB, Revicki DA, Spritzer KL, Cella D. Development of physical and mental health summary scores from the patient-reported outcomes measurement information system (PROMIS) global items. *Qual Life Res.* 2009;18:873–880. doi:10.1007/s11136-009-9496-9
 25. Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *J Appl Psychol.* 2003;88 879–903. doi:10.1037/0021-9010.88.5.879
 26. Nagourney A. Old and on the street: The graying of America's homeless. *The New York Times.* 2016; https://www.nytimes.com/2016/05/31/us/americas-aging-homeless-old-and-on-the-street.html?_r=1. Accessed May 18, 2019.
 27. Hahn JA, Kushel MB, Bangsberg DR, Riley E, Moss AR. BRIEF REPORT: The aging of the homeless population: Fourteen-year trends in San Francisco. *J Gen Intern Med.* 2006;21:775–778. doi:10.1111/j.1525-1497.2006.00493.x
 28. Brown RT, Kiely DK, Bharel M, Mitchell SL. Geriatric syndromes in older homeless adults. *J Gen Intern Med.* 2012;27:16–22. doi:10.1007/s11606-011-1848-9
 29. Hwang SW, Kirst MJ, Chiu S, et al. Multidimensional social support and the health of homeless individuals. *J Urban Health Bull NY Acad Med.* 2009;86:791–803. doi:10.1007/s11524-009-9388-x
 30. Uchino BN, Bowen K, Carlisle M, Birmingham W. Psychological pathways linking social support to health outcomes: A visit with the “ghosts” of research past, present, and future. *Soc Sci Med (1982).* 2012;74:949–957. doi:10.1016/j.socscimed.2011.11.023