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Mental Health Care Need and Service Utilization in Older Adults Living in Public Housing

Adam Simning, B.A.[1], **Edwin van Wijngaarden, Ph.D.**[1], **Susan G. Fisher, M.S., Ph.D.**[1], **Thomas M. Richardson, Ph.D.**[2], and **Yeates Conwell, M.D.**[2]

[1] University of Rochester School of Medicine and Dentistry, Department of Community and Preventive Medicine

[2] University of Rochester School of Medicine and Dentistry, Department of Psychiatry

Abstract

Objectives—Anxiety and depression in socioeconomically disadvantaged older adults frequently go unrecognized and untreated. This study aims to characterize mental illness and its treatment in older adult public housing residents who have many risk factors for anxiety and depression.

Design—Cross-sectional.

Setting—Public housing high-rises in Rochester, NY.

Participants—190 residents aged 60 years and older.

Measurements—Anxiety and depression were assessed using the Structured Clinical Interview for the DSM-IV, GAD-7, and PHQ-9. We obtained information on mental health care from medication review and self-report.

Results—Participants had a median age of 66 years, 58% were female, 80% were black, and 92% lived alone. Many participants (31%) were in need of mental health care: 21% had syndromal and 11% had subsyndromal anxiety or depression. Mental health care need was associated with younger age, intact cognitive functioning, impairments in instrumental activities of daily living (IADL), more medical illness, decreased mobility, smaller social network size, more severe life events, and increased utilization of medical, human, and informal services. Of those with mental health care need, most were not receiving it. Compared to residents receiving mental health care, residents with untreated need were more likely to be male and have less IADL impairment, medical illness, severe life events, onsite social worker use, and human services utilization.

Corresponding Author: Adam Simning, B.A., Department of Community and Preventive Medicine, University of Rochester School of Medicine and Dentistry, 601 Elmwood Avenue, Box 644, Rochester, NY 14642, USA, Phone: (585) 273-1964, adam_simning@urmc.rochester.edu.
Other Authors:
Edwin van Wijngaarden, Ph.D., Department of Community and Preventive Medicine, University of Rochester School of Medicine and Dentistry, 601 Elmwood Avenue, Box 644, Rochester, NY 14642, USA, edwin_van_wijngaarden@urmc.rochester.edu
Susan G. Fisher, M.S., Ph.D., Department of Community and Preventive Medicine, University of Rochester School of Medicine and Dentistry, 601 Elmwood Avenue, Box 644, Rochester, NY 14642, USA, susan_fisher@urmc.rochester.edu
Thomas M. Richardson, Ph.D., Department of Psychiatry, University of Rochester School of Medicine and Dentistry, 300 Crittenden Boulevard, Rochester, NY 14642, USA, trichardson222@gmail.com
Yeates Conwell, M.D., Department of Psychiatry, University of Rochester School of Medicine and Dentistry, 300 Crittenden Boulevard, Rochester, NY 14642, USA, yeates_conwell@urmc.rochester.edu

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Conclusions—Mental illness was common and largely untreated in public housing residents. Increasing collaboration between medical, mental, and human services is needed to improve identification, treatment, and ultimately prevention of late-life mental illness in this community setting.

Keywords

Anxiety; depression; disparities; African American

OBJECTIVE

The United States' mental health care system inadequately serves the rapidly expanding minority older adult population.[1] Significant disparities are present with minorities having less access to mental health care and receiving lower quality care relative to other groups.[2,3] Public housing is a promising setting for helping to understand and possibly overcome some of these mental health care inequalities. A national study of public housing adult residents indicates a high need for mental health care.[4] Public housing exists in all 50 states and is home to approximately 900,000 older adults, most of whom are of minority status.[5] U.S. citizens or people with eligible immigration status who have low incomes are eligible for public housing, with income requirements varying by locale.[6]

Older adults living in public housing have characteristics that may put them at risk for mental illness. Especially relevant to the development of late-life anxiety and depression is that residents often live alone and have limited educational attainment, low incomes, and high levels of medical comorbidity and functional impairment.[7,8] In Baltimore the prevalence of psychiatric disease in older residents was 1.5 times higher than in a community-based sample. Among these residents, 8% and 2% had a one-month prevalence of a mood and anxiety disorder, respectively.[9] Another study estimated that 26% and 12% of older residents had a 12-month prevalence of major depression and generalized anxiety disorder, respectively.[8] Examination of a disparate group of psychopathologies (e.g., anxiety, mood, substance use, psychotic, and cognitive disorders) suggests that more than one-third of older adult residents needed mental health care, and in most the need was unmet.[7] At six years of follow-up, 70 to 80% of community-dwelling older adults with anxiety or depression continued to suffer from these illnesses.[10,11] Left untreated, late-life anxiety and depression are chronic conditions that can have serious consequences, such as increased disability,[12,13] disease-specific mortality,[13] family disruption,[13] lower sense of well-being,[12,13] and suicide.[13]

Our understanding of late-life anxiety and depression in public housing residents is incomplete and at times conflicting. Anxiety and depression prevalence is uncertain as estimates vary widely with depression being uniformly elevated in this setting, but with mixed findings on anxiety disorders.[8,9] Furthermore, we have limited knowledge of subsyndromal anxiety and depression in public housing residents. Yet subsyndromal illnesses can cause suffering and lead to poor health outcomes and excess cost.[14,16]

This study seeks to expand on prior public housing research by characterizing older adult public housing residents with regard to: 1) the prevalence of syndromal and subsyndromal anxiety and depression and 2) the prevalence and correlates of their mental health care need and service utilization. We consider previously identified late-life anxiety and depression correlates[17,18] that span multiple domains: 1) sociodemographics, 2) associated mental health, 3) physical health and disability, 4) coping mechanisms, social support, and life events, and 5) various forms of service utilization. Our longer-term objective is to inform the

design of community-based interventions that seek to overcome mental health care disparities.

METHODS

Participants

We conducted a two-stage cross-sectional study within four public housing high-rises reserved for older adults in Rochester, NY, from May 2009 through June 2010. The high-rises housed 553 public housing residents who had a median age of 64 years, and 53% were female, 75% were non-Hispanic, and 61% were black. The University of Rochester Research Subjects Review Board approved this study.

During Stage 1, we sent a series of mailings (in English and Spanish) to all residents and organized a series of onsite educational and recruitment activities. The purpose of Stage 1 was to engage residents in the study, provide data across demographic groups, and facilitate recruitment into Stage 2's psychiatric research interview. The first two mailings contained educational material on late-life health issues. Onsite educational booths were staffed to coincide with these mailings. The 3rd and 4th mailings had a questionnaire assessing demographics and general health; the 4th mailing was sent to non-responders. After completing the health questionnaire, residents returned it to an onsite recruitment booth where they were immediately reimbursed $5. On the questionnaire, residents indicated their willingness to participate in the Stage 2 interview.

Stage 2 comprised a 1.5 hour psychiatric research interview conducted in English either in the participant's apartment or a different private onsite location. To participate in the interviews, residents had to be English-speaking, be aged 60 years and older, and have capacity to provide informed consent. The interview assessed sociodemographic characteristics; mental health; physical health and disability; coping mechanisms, social support, and life events; and service utilization domains. Interview participants received $25.

Stage 1 had 358 participants (65% response rate) with responders were more likely to be non-Hispanic ($\chi^2 = 14.849$, degrees of freedom = 1, $p < 0.001$) and black (Fisher's Exact Test: $p < 0.001$) than non-responders. Of Stage 1 responders, 210 (59%) met eligibility criteria for Stage 2; the most common reasons for Stage 1 responders being ineligible for Stage 2 were age younger than 60 years (n = 101; 28%) and inability to speak English (n = 35; 10%). The Stage 2 interview had 190 participants, which constituted the sample for analyses presented here. This sample included 180 (62%) of an estimated 292 non-Hispanic residents aged 60 years and older who were English-speaking and cognitively able to provide informed consent. The high-rises were also home to 89 Hispanic residents aged 60 years and older. Forty-three of these Hispanic residents completed the Stage 1 questionnaire. Only 13 of these 43 responders could speak English, of whom we interviewed 10.

Among non-Hispanic Stage 2 eligible residents, Stage 2 responders were younger than the 112 non-responders (66.3 vs. 71.5 years, respectively; Mann-Whitney Test: $z = 3.749$, $p < 0.001$), but did not differ by gender or race. These analyses of non-response characteristics of eligible Stage 2 residents did not include Hispanic residents because we did not know which of the 46 Stage 1 non-responding Hispanic residents had the English-speaking ability necessary for participation.

Primary Measures

Anxiety and Depression—The Structured Clinical Interview for the DSM-IV (SCID) is based on DSM-IV-TR criteria.[19] In our study, the SCID evaluated the presence of panic

disorder with and without agoraphobia, agoraphobia without history of panic disorder, social phobia, specific phobia, obsessive compulsive disorder, posttraumatic stress disorder, generalized anxiety disorder, major depressive episode, and dysthymic disorder.[19] All interviews were conducted by the first author (A.S.) and diagnoses were assigned based on review of all available data by a geriatric psychiatrist (Y.C.).

The GAD-7 is a seven-item anxiety scale scored from 0 to 21. A score of 10 or greater has a sensitivity of 68% and specificity of 88% for detecting generalized anxiety, posttraumatic stress, panic, and social anxiety disorders.[20] The suggested severity threshold values for the GAD-7 are 0 to 4 (minimal), 5 to 9 (mild), 10 to 14 (moderate), and 15 to 21 (severe).[20] We defined subsyndromal anxiety as a GAD-7 score of at least 10 in the absence of a current (syndromal) anxiety disorder as diagnosed by the SCID.

The PHQ-9 is a nine-item depression scale scored from 0 to 27. A score of 10 or greater has a sensitivity and specificity both equal to 88% for detecting major depression.[21] The suggested PHQ-9 severity threshold values are 0 to 4 (minimal), 5 to 9 (mild), 10 to 14 (moderate), 15 to 19 (moderately severe), and 20 to 27 (severe).[21] We defined subsyndromal depression as a PHQ-9 score of at least 10 in the absence of a current (syndromal) major depressive episode or dysthymic disorder as diagnosed by the SCID.

Services Received and Self-Reported Mental Health—Participants reported if and when they had seen a mental health professional for either inpatient or outpatient care. They also reported whether they were currently prescribed medication for any mental health problem such as depression, anxiety, or stress. Furthermore, we reviewed medications and medication lists to document anxiolytic and antidepressant use; we did not examine use of antipsychotics, anticonvulsants, or lithium. We also asked interviewees whether in the past six months they felt they might need to see a professional because of problems with emotions or nerves. Lastly, participants rated their current mental health as very bad, poor, fair, good, or excellent.

Mental Health Treatment Need—We defined residents with psychiatric need as those having at least one of four criteria present: 1) syndromal anxiety and/or depression as diagnosed by the SCID, 2) subsyndromal anxiety and/or depression, 3) self-rated mental health that was reported as poor or very bad, or 4) self-reported need to see a professional in the past six months because of problems with emotions or nerves. Subsyndromal anxiety and depression were included with syndromal disorders when examined as indicators of mental health care need. Doing so provides a sample size better suited to analysis of the relationship of interest to us. Additionally, subsyndromal anxiety and depressive disorders as defined here represent clinically significant conditions with at least a moderate degree of symptom severity based on their GAD-7 and PHQ-9 cut-off scores.

Mental Health Treatment Received—We considered mental health treatment received if residents satisfied at least one of three criteria: 1) saw a mental health professional within the past six months, 2) were currently prescribed a medication for mental health problems based on self-report, or 3) had an anxiolytic or antidepressant based on medication review.

Secondary Measures

To provide a context for characterizing mental health treatment need, we examined late- life anxiety and depression correlates that spanned five domains.

Sociodemographics Domain—Self-report provided information on age, education, gender, race, and living status.

Associated Mental Health Domain—We evaluated cognitive impairment with the Mini-Cog. The Mini-Cog has comparable sensitivity (99%) and specificity (93%) to the Mini-Mental Status Exam for detecting dementia.[22]

Physical Health and Disability Domain—In this domain we included activities of daily living (ADLs),[23] instrumental activities of daily living (IADLs),[24] and a list of medical conditions (adapted from the Minimum Data Set[25]). Additionally, the Life-Space Assessment rated mobility within an individual's home, immediate surroundings, neighborhoods, towns, and beyond; the total score ranged from 0 to 120.[26]

Coping Mechanisms, Social Support, and Life Events Domain—The Brief COPE evaluates coping using 14 two-item subscales.[27] Based on adaptive and maladaptive coping research,[27–29] we dichotomized the 14 subscales into adaptive coping (active coping, planning, using instrumental support, positive reframing, acceptance, religion, using emotional support, humor) and maladaptive coping (venting, behavioral disengagement, denial, self-distraction, self-blame, substance use). The adaptive and maladaptive coping summary scores ranged from 0 to 48 and 0 to 36, respectively. The six-item Lubben Social Network Scale assessed family and friend support as a measure of isolation in community-dwelling older adults.[30] The combined family and friend score ranged from 0 to 30. The Multidimensional Scale of Perceived Social Support characterized perceived social support with 12 questions. Its total score ranged from 12 to 84.[31] We modified the Louisville Older Persons Events Scale[32] to measure negative life events within the three months preceding the interview. The worst reported event's subjective impact was assessed with three questions concerning 1) the amount of change attributed to the event, 2) how bad the event was, and 3) how much it has been on the participant's mind. The summary score ranged from 0 to 9, with a higher score representing greater impact of the event.

Service Utilization Domain—To characterize healthcare and human services utilization in the past three months we combined items from the Cornell Services Index, which evaluates health services use,[33] with items from a list of human and healthcare services.[34] Our modified Cornell Services Index had summary scores representing the number of health (0 to 12) and human services (0 to 13) used. Six questions assessed informal service utilization, some of which were derived from a previous study.[35] These questions asked if the resident had received assistance from family members, friends, or clergy in the past three months for medical, non-medical, emotional, nerves, alcohol or drugs, or mental health reasons. Total informal support scores ranged from 0 to 6. History of ever receiving assistance from the onsite social worker (yes/no) was determined by examining social worker records.

Statistical Analysis

Basic descriptive statistics (e.g., medians, interquartile ranges) described the participant characteristics, prevalence of anxiety and depression, and utilization of mental health services. Bivariate analyses characterized differences between two types of resident groupings: 1) residents with and without mental health care need and 2) residents with mental health care need that had and had not received mental health treatment. Pearson Chi-Square and Fisher's Exact tests examined differences in categorical variables. The non-parametric Mann-Whitney Test for non-normal data contrasted differences in continuous variables. Based on the bivariate analyses of residents with and without mental health care need, we included variables with a p-value of 0.10 or less in a multivariate logistic regression model to estimate the risk of having mental health care need. This model used a stepwise selection method with an entry and stay p-value of 0.10. Because of the limited sample size of residents needing mental health care, we did not use multivariate logistic

regression to estimate the risk of not receiving mental health care in this group. We conducted our analyses with SAS statistical software version 9.2 (SAS Institute, Inc., Cary, NC).

RESULTS

Sample Characteristics

The study's 190 participants had a median age of 66 years (interquartile range: 63 to 73), and 95% were non-Hispanic, 80% were black, 58% were women, 47% had not completed 12^{th} grade, and 92% lived alone.

Anxiety and Depression Prevalence

Thirty-nine (21%) residents had syndromal or subsyndromal anxiety, and 28 (15%) residents had syndromal or subsyndromal depression. In total, 48 (25%) residents were experiencing a syndromal and/or subsyndromal condition (Table 1). Analyses of mental illness by race or ethnicity yielded no significant differences across demographic groupings (data not shown).

Frequency of Mental Health Treatment Need and Services Received

Mental health care need was present if residents fulfilled at least one of four criteria: 1) 39 (21%) residents had syndromal anxiety and/or depression, 2) 21 (11%) had subsyndromal anxiety and/or depression, 3) 7 (4%) had poor self-reported mental health, and 4) 23 (12%) reported a need to see a mental health professional in the six months prior to the interview. Combining these indicators of mental distress, 59 (31%) public housing residents had a need for mental health care (Table 2).

Among all interviewees, 18 (10%) reported seeing a mental health professional in the prior six months and, based on medication review, 44 (23%) were prescribed an antidepressant and 7 (4%) an anxiolytic. Twenty-eight (21%) residents without a mental health care need were receiving mental health care treatment. Of those with a mental health care need, only 27 (46%) had received treatment.

Correlates of Mental Health Treatment Need and Services Received

Those with mental health care need were younger (64 vs. 68 years) and had less cognitive impairment, more IADL impairments, more medical conditions, less mobility, smaller social networks, more severe life events, and more utilization of medical (e.g., outpatient doctor visits), human (e.g., transportation assistance), and informal (e.g., family assistance) services than those without need for mental health care (Table 3). In a multivariate logistic regression analysis, younger age, smaller social network size, more severe recent life events, and more medical services utilization were independently associated with mental health care need (Table 4).

Among residents with need for mental health services, residents receiving mental health care had more IADL impairments, medical conditions, severe life events, and human services utilization and were more likely to be female (78% vs. 50%) and use the onsite social worker (100% vs. 78%) than those not receiving mental health care (Table 5).

CONCLUSIONS

Syndromal and subsyndromal anxiety and depression afflicted 1 in 4 older adult public housing residents participating in our study. Our one-month syndromal anxiety prevalence (17%) is more consistent with the Connecticut public housing study (12-month generalized anxiety disorder: 12%) than the Baltimore study (one-month anxiety disorder: 2%), while

our syndromal depression level (6%) is in agreement with the Baltimore study (one-month major depression: 6%), but not the Connecticut study (12-month major depression: 26%).[8,9]

In addition to the disadvantaged socioeconomic situation experienced by many residents, residents had high levels of medical comorbidity and functional impairment, characteristics that can increase the residents' risk for late-life anxiety and depression.[17] Congruent with prior work,[17] and highlighting the complex interplay of factors that contribute to mental health care need, characteristics spanning sociodemographic; associated mental health; physical health and disability; coping mechanisms, social support, and life events; and service utilization domains were associated with mental health care need. Functionally impaired and medically ill residents with limited mobility and social support networks were especially at risk.

Our treatment need findings closely paralleled a previous study that estimated 37% of residents needed mental health care, of whom the mental health care need was unmet in 58% (our respective estimates were 31% and 54%).[7] Interestingly, among our participants with mental health care need, the most vulnerable residents (e.g., medically ill, functionally impaired) were more likely to have received mental health care.

Current evidence indicates that the mental health system does not benefit many of these older adult residents. To improve the mental health system, investigators have devised outreach programs that can increase identification and subsequent treatment of late-life mental illness.[36] Many of the outreach programs, however, require a mental health specialist team. This highly credentialed team can be cost-prohibitive to sustain or translate to locations where funding is limited. Alternative, more sustainable and context-dependent approaches are needed. Approaches that empower extant community agencies to serve as a safety net for mentally ill older adults may be especially pragmatic – especially in settings that have health and social work professionals directly available to those with mental health care need. Such an approach has been applied to home healthcare services.[37] The public housing setting is also uniquely well-suited for community-based interventions because there is demonstrated need for mental health services and social work professionals interact closely with many of the residents.

To some extent, public housing high-rises may loosely represent a form of assisted living for community dwelling older adults: rent and utilities are highly subsidized, services can be readily accessible (e.g., transportation assistance), and maintenance workers are freely available for home repairs. Additionally, in our region as elsewhere,[38] many public housing high-rises have onsite social workers that interact daily with the residents. A major function of these social workers is to connect residents to outside resources and help residents age-in-place. Onsite social workers had – at one time or another – provided assistance to 84% of our participants, and they may be ideal candidates for connecting residents to indicated mental health care. One possibility would be for the onsite social workers to use anxiety and depression screening tools and refer positive screens for further evaluation and care. Utilizing onsite social workers to systematically screen, refer, and possibly treat (e.g., problem-solving therapy for subsyndromal depression) the residents could require fewer resources and be more easily adopted than outreach models that rely on using (and funding) mental health specialists.

Our findings have some limitations. First, this study occurred in a single locale, interviewed English-speakers only, and had higher response among non-Hispanics and younger residents, which may limit its generalizability (e.g., it is not generalizable to non-English-speaking Hispanic residents). Second, we lacked detailed information on study non-responders, limiting our ability to characterize them. Nonetheless, our study had a good

response among the non-Hispanic and black residents who constitute about 4 in 5 and 1 in 2 national public housing residents, respectively.[5] Third, the interviews may not have been conducted in a participant's native or preferred language. Since many of the 10 Hispanic interviewees were likely native Spanish speakers, we excluded them in sensitivity analyses which yielded findings that had negligible differences with the analyses including these Hispanic residents. Fourth, we did not have access to patient records and have incomplete information on prescription medications, including the doses and indications for which they were prescribed, and the participant's treatment adherence. This precluded our ability to examine treatment adequacy and appropriateness, and prevents us from knowing whether the mental health care received by the 21% of residents not meeting our need criteria represents successful treatment. Lastly, we did not adjust for multiple comparisons (increases the possibility of Type I Error) in an effort to minimize Type II Error,[39] which we regard at this stage of research to be a greater threat. Therefore, we have attempted to interpret the findings conservatively and in light of the overall pattern of findings.

This study illustrates the relatively high prevalence of syndromal anxiety and depression among these older adult residents, reinforces the evidence that there is considerable unmet mental health care need in this setting, and was the first to examine subsyndromal late-life anxiety and depression. Future research in public housing should include other regions of the United States as most studies have been located in the Northeast. Nonetheless, these findings indicate potential opportunities to improve mental health care in this setting (e.g., prevention studies targeting subsyndromal conditions). Sustainable community-based interventions should be designed and tested as a means to reduce the mental health disparities evident in these vulnerable older adults.

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Table 1

Syndromal and Subsyndromal Anxiety and Depression Prevalence in Older Adults Living in Public Housing

Mental Illness[a]	n	%	95% C.L.[b]
Anxiety			
Syndromal Anxiety[c]	33	17.4	12.3 to 23.5
Subsyndromal Anxiety	6	3.2	1.2 to 6.8
Any Anxiety	39	20.5	15.0 to 27.0
Depression			
Syndromal Depression[d]	12	6.3	3.3 to 10.8
Subsyndromal Depression	16	8.4	4.9 to 13.3
Any Depression	28	14.7	10.0 to 20.6
Anxiety and Depression			
Syndromal Anxiety and/or Depression	39	20.5	15.0 to 27.0
Subsyndromal Anxiety and/or Depression	21	11.1	7.0 to 16.4
Any Anxiety and/or Depression	48	25.3	19.3 to 32.1

[a] With the exception of the subsyndromal conditions, all syndromal anxiety and depressive disorders are non-hierarchical, meaning that a single participant may have multiple anxiety and/or depressive disorders.

[b] 95% C.L. represents 95% confidence limits for the summary point estimates using exact methods.

[c] Syndromal anxiety includes current panic disorder with (n = 3; 1.6%) and without agoraphobia (n = 2; 1.1%), agoraphobia without history of panic disorder (n = 0; 0%), social phobia (n = 2; 1.1%), specific phobia (n = 21; 11.1%), obsessive compulsive disorder (n = 1; 0.5%), posttraumatic stress disorder (n = 2; 1.1%), and generalized anxiety disorder (n = 6; 3.2%).

[d] Syndromal depression includes dysthymic disorder (n = 2; 1.1%) and major depressive episode (n = 10; 5.3%).

Table 2

Mental Health Treatment Need and Treatment Received in Older Adults Living in Public Housing

	n	%	95% C.L.[a]
Treatment Need[b]			
Syndromal Anxiety and/or Depression	39	20.5	
Subsyndromal Anxiety and/or Depression[c]	21	11.1	
Self-Reported Mental Health			
Poor	7	3.7	
Very Bad	0	0	
Self-Reported Mental Health Need in Past Six Months	23	12.1	
Total Needing Treatment	59	31.1	24.6 to 38.2
Services Received by All Participants			
Seen Mental Health Professional in Past Six Months	18	9.5	
Prescribed Antidepressant[d]	44	23.2	
Prescribed Anxiolytic[d]	7	3.7	
Prescribed Psychotropic Medication[e]	40	21.1	
Total Receiving Treatment	55	28.9	22.6 to 36.0
Treatment Need			
Those with Need Who were Not Receiving Treatment	32	54.2	40.8 to 67.3

[a] 95% C.L. represents 95% confidence limits for the summary point estimates using exact methods.

[b] All need categories are non-exclusive.

[c] Subsyndromal is defined by GAD-7 or PHQ-9 score of 10 or greater (indicating at least moderate distress) in the absence of a syndromal anxiety or depressive disorder, respectively.

[d] Based on medication review and does not include anti-psychotics.

[e] Based on self-report of being “currently prescribed medication for any mental health problems such as depression, anxiety, or stress.”

Table 3

Sample Characteristics Categorized by Treatment Need Groupings

Characteristics	Total, n = 190 % or Median (Interquartile Range)	Treatment Need, n = 59 % or Median (Interquartile Range)	No Treatment Need, n = 131 % or Median (Interquartile Range)	p value[a]
Sociodemographics				
Age, years	66.3 (63.0 to 72.6)	63.5 (61.9 to 67.0)	67.8 (63.9 to 74.4)	0.0003
Education				0.5409
< Grade 12	47.4	44.1	48.9	
≥ Grade 12	52.6	55.9	51.1	
Gender				0.3668
Female	57.9	62.7	55.7	
Male	42.1	37.3	44.3	
Race				0.0997
Black	80.0	72.9	83.2	
Non-Black	20.0	27.1	16.8	
Lives Alone				0.7794
Yes	91.6	93.2	90.8	
No	8.4	6.8	9.2	
Lived in Apartment, years	5.8 (3.0 to 10.0)	5.0 (3.0 to 10.0)	6.0 (3.0 to 11.0)	0.2554
Associated Mental Health				
Cognitive Impairment[b]				0.0417
Yes	27.1	17.2	31.5	
No	72.9	82.8	68.5	
Physical Health and Disability				
# of ADLs	0 (0 to 1.0)	0 (0 to 1.0)	0 (0 to 1.0)	0.1672
# of IADLs	0 (0 to 2)	1.0 (0 to 3.0)	0 (0 to 2.0)	<0.0001
# of Medical Conditions	5.0 (4.0 to 7.0)	7.0 (5.0 to 8.0)	5.0 (3.0 to 7.0)	<0.0001
Mobility	52.0 (39.0 to 64.0)	45.0 (32.0 to 63.0)	54.0 (42.5 to 66.0)	0.0112
Coping Mechanisms, Social Support, and Life Events				
Adaptive Coping	31.0 (25.0 to 36.0)	31.0 (24.0 to 34.0)	32.0 (26.0 to 37.0)	0.1467
Maladaptive Coping	9.0 (7.0 to 12.0)	9.0 (8.0 to 13.0)	9.0 (6.0 to 11.0)	0.1369
Social Network Size	15.0 (11.0 to 20.0)	13.0 (9.0 to 18.0)	16.0 (12.0 to 21.0)	0.0038
Perceived Support	66.5 (58.0 to 76.0)	66.0 (55.0 to 76.0)	67.0 (60.0 to 76.0)	0.4170
Life Events Score	2.0 (0 to 5.0)	4.0 (1.0 to 6.0)	1.0 (0 to 4.0)	<0.0001
Service Utilization				
Medical	2.0 (2.0 to 3.0)	2.0 (2.0 to 4.0)	2.0 (2.0 to 3.0)	0.0029
Human	2.0 (1.0 to 2.0)	2.0 (1.0 to 3.0)	1.0 (1.0 to 2.0)	0.0110
Informal	0 (0 to 0)	0 (0 to 1.0)	0 (0 to 0)	0.0056
Regular PCP				0.5074
Yes	94.2	96.6	93.1	
No	5.8	3.4	6.9	
Onsite Social Worker Use				0.2651

Characteristics	Total, n = 190 % or Median (Interquartile Range)	Treatment Need, n = 59 % or Median (Interquartile Range)	No Treatment Need, n = 131 % or Median (Interquartile Range)	p value[a]
Yes	83.7	88.1	81.7	
No	16.3	11.9	18.3	

[a] p values determined by χ^2 tests (degrees of freedom = 1) or the Fisher's Exact Test for categorical variables and Mann-Whitney tests for characteristics with median values.

[b] Two subjects had missing cognitive impairment information.

Table 4

Multivariate Logistic Regression Analysis with Stepwise Regression of Correlates Associated with Treatment Need

Domains	Odds Ratio	95% Confidence Intervals
Sociodemographics		
Age	0.904[b]	0.848 to 0.963
Coping Mechanisms, Social Support, and Life Events		
Social Network Size	0.944[a]	0.895 to 0.996
Life Events Score	1.192[b]	1.054 to 1.348
Service Utilization		
Medical	1.438[b]	1.128 to 1.833

Notes: Only variables with a p-values ≤ 0.10 (based on bivariate analyses) were included in the logistic regression model that applied a stepwise selection method (entry and stay p-value of 0.10); n = 188. The logistic model fit statistics for each step are as follows (−2 Log Likelihood, degrees of freedom, p-value based on Likelihood Ratio): Step 0 (Intercept): 232.332, n/a, n/a; Step 1 (Life Events Score added): 215.675, 1, $p < 0.001$; Step 2 (Number of Medical Conditions added): 207.145, 2, $p < 0.001$; Step 3 (Age added): 200.792, 3, < 0.001; Step 4 (Medical Utilization added): 194.986, 4, $p < 0.001$; Step 5 (Number of Medical Conditions removed): 196.632, 3, $p < 0.001$; Step 6 (Social Network Size added): 192.075, 4, $p < 0.001$.

[a] $p \leq 0.05$; p-values were generated using Wald chi-square tests with 1 degree of freedom.

[b] $p \leq 0.01$.

Table 5

Sample Characteristics of Residents Needing Mental Health Treatment Grouped by Whether Such Treatment was Received or Not Received

Characteristics	Total, n = 59 % or Median (Interquartile Range)	Treatment Received, n = 27 % or Median (Interquartile Range)	Treatment Not Received, n = 32 % or Median (Interquartile Range)	p value[a]
Sociodemographics				
Age, years	63.5 (61.9 to 67.0)	62.4 (61.8 to 67.0)	65.4 (62.3 to 70.5)	0.0738
Education				0.1271
< Grade 12	44.1	33.3	53.1	
≥ Grade 12	55.9	66.7	46.9	
Gender				0.0279
Female	62.7	77.8	50.0	
Male	37.3	22.2	50.0	
Race				0.3240
Black	72.9	66.7	78.1	
Non-Black	27.1	33.3	21.9	
Lives Alone				0.6175
Yes	93.2	96.3	90.6	
No	6.8	3.7	9.4	
Lived in Apartment, years	5.0 (3.0 to 10.0)	5.0 (2.5 to 9.0)	5.0 (3.0 to 10.0)	0.9331
Associated Mental Health				
Cognitive Impairment[b]				0.1601
Yes	17.2	7.7	25.0	
No	82.8	92.3	75.0	
Physical Health and Disability				
# of ADLs	0 (0 to 1.0)	1.0 (0 to 2.0)	0 (0 to 1.0)	0.1482
# of IADLs	1.0 (0 to 3.0)	2.0 (1.0 to 4.0)	1.0 (0 to 2.0)	0.0366
# of Medical	7.0 (5.0 to 8.0)	8.0 (7.0 to 9.0)	6.0 (4.0 to 7.0)	<0.0001
Conditions Mobility	45.0 (32.0 to 63.0)	44.0 (32.0 to 49.0)	52.0 (37.8 to 65.0)	0.0632
Coping Mechanisms, Social Support, and Life Events				
Adaptive Coping	31.0 (24.0 to 34.0)	29.0 (24.0 to 34.0)	31.5 (24.0 to 34.0)	0.5075
Maladaptive Coping	9.0 (8.0 to 13.0)	11.0 (8.0 to 15.0)	9.0 (6.5 to 12.0)	0.0762
Social Network Size	13.0 (9.0 to 18.0)	12.0 (9.0 to 16.0)	14.5 (10.0 to 20.0)	0.1586
Perceived Support	66.0 (55.0 to 76.0)	61.0 (54.0 to 72.0)	70.0 (57.0 to 77.0)	0.1438
Life Events Score	4.0 (1.0 to 6.0)	5.0 (3.0 to 7.0)	2.0 (0 to 5.0)	0.0021
Service Utilization				
Medical[c]	2.0 (2.0 to 4.0)	3.0 (2.0 to 5.0)	2.0 (2.0 to 3.0)	0.1564
Human	2.0 (1.0 to 3.0)	2.0 (2.0 to 3.0)	1.5 (1.0 to 2.5)	0.0172
Informal	0 (0 to 1.0)	0 (0 to 1.0)	0 (0 to 1.0)	0.2453
Regular PCP				1.0000
Yes	96.6	96.3	96.9	
No	3.4	3.7	3.1	

Characteristics	Total, n = 59 % or Median (Interquartile Range)	Treatment Received, n = 27 % or Median (Interquartile Range)	Treatment Not Received, n = 32 % or Median (Interquartile Range)	p value[a]
Onsite Social Worker Use				0.0125
Yes	88.1	100	78.1	
No	11.9	0	21.9	

[a] p values determined by χ^2 tests (degrees of freedom = 1) or the Fisher's Exact Test for categorical variables and Mann-Whitney tests for characteristics with median values.

[b] One subject had missing cognitive impairment information.

[c] No participant with mental health care need who did not receive mental health treatment received a mental health service listed in the modified Cornell Services Index.