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Unmet needs for HIV ancillary services among persons with diagnosed HIV aged 55 years and older

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Abstract

Background: Approximately two in five persons with HIV (PWH) in the United States are aged 55 years. HIV ancillary services, such as case management and transportation services, can help older PWH remain engaged in care. We used data from the Medical Monitoring Project (MMP) to describe the prevalence of unmet needs for ancillary services among persons with diagnosed HIV aged 55 years.

Setting: Medical Monitoring Project is an annual cross-sectional study that reports representative estimates on adults with diagnosed HIV in the United States.

Methods: We used MMP data collected during 6/2019–5/2021 to calculate weighted percentages of cisgender men and cisgender women with HIV aged 55 years with unmet needs for ancillary services, overall and by selected characteristics (N=3,200). Unmet need was defined as needing but not receiving a given ancillary service. We assessed differences between groups using prevalence ratios (PRs) and 95% confidence intervals (CIs) with predicted marginal means.

Results: Overall, 37.7% of cisgender men and women with HIV aged 55 years had 1 unmet need for ancillary services. Overall, 16.6% had 1 unmet need for HIV support services, 26.9% for non-HIV medical services, and 26.7% for subsistence services. There were no statistically significant differences in unmet needs for services by gender. The prevalence of 1 unmet need was higher among non-White persons (PR range: 1.35–1.63), persons who experienced housing instability (PR=1.70), and those without any private insurance (PR range: 1.49–1.83).

Conclusion: A large percentage of older PWH have unmet needs for ancillary services. Given the challenges that older PWH face related to the interaction of HIV and aging-associated factors, deficits in the provision of ancillary services should be addressed.

Keywords

HIV; ancillary services; unmet need; aging

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Introduction

Since the advent of highly effective antiretroviral therapy (ART), the life expectancy of persons with HIV (PWH) has approached that of persons without HIV.¹ As a result, the demographic profile of PWH has shifted to a greater percentage of older people. In 2019, nearly two in five adults with diagnosed HIV in the United States were aged 55 years.² This proportion will likely continue to increase because of the effectiveness of ART.³

As PWH age, they may experience an array of new health-related difficulties including higher rates of and earlier onset of co-morbidities, mental health concerns, and geriatric syndromes (e.g., frailty, neurocognitive decline).^{1, 4-7} These new concerns may be complicated by age-related treatment concerns, such as increased risk of medication side effects, interactions and contraindications, and by age-related changes that can affect an older person's ability to adhere to ART regimens.⁶

Given the increasing complexity of HIV care for older PWH, engagement in care remains important as these persons age. HIV ancillary services can improve engagement in care and support people's overall health and well-being.⁸ HIV ancillary services are those that comprehensively support care engagement and viral suppression, and include services such as case management, patient navigation, adherence support, transportation assistance, and drug/alcohol treatment.⁹ Unmet need for ancillary services is associated with adverse clinical outcomes with a dose response relationship between the number of unmet needs and outcomes.^{10, 11}

As the older HIV population continues to grow, so too does the importance of planning for the needs of this group. Because of this, the United States National HIV/AIDS Strategy (NHAS, 2022–2025) includes a new focus on quality of life and on meeting the needs of older PWH.¹² The NHAS emphasizes that the U.S. healthcare system must adapt to provide holistic care that addresses both aging-related health and ancillary service needs and that analyses should be conducted to identify gaps in service delivery so that government programs and community-based organizations can address deficits in service provision.¹²

Although several studies have examined ancillary services in varied PWH populations, we are unaware of any recent U.S. study that has focused on unmet needs for ancillary services in the older PWH population.^{10, 11, 13-17} As such, the objective of our study was to use representative data from the Centers of Disease Control and Prevention's Medical Monitoring Project (MMP) to describe the prevalence of unmet needs for ancillary services among persons with diagnosed HIV aged 55 years, overall and by selected characteristics. Because some social determinants of health, mental and other health conditions disproportionately affect men versus women, which might result in differential need for ancillary services, the analysis was also broken down by gender.^{18, 19}

Methods

The Medical Monitoring Project is an annual, cross-sectional, nationally representative survey that assesses the behavioral and clinical characteristics of adults with diagnosed HIV in the United States. MMP uses a complex survey design and two-stage sampling.

In the first sampling stage, 16 states (including 6 separately funded jurisdictions) and 1 territory were sampled from all 50 U.S. states, the District of Columbia, and Puerto Rico; jurisdictions were selected using a probability proportional to size sampling strategy based on the prevalence of HIV and AIDS. In the second stage, the National HIV Surveillance System is used to annually select a random sample of adults with diagnosed HIV from each selected jurisdiction.²⁰ During the 2019–2020 data cycles, the response rate at the first stage was 100%; the response rate, at the second stage, ranged from 40%–45% by cycle year.

Data for the 2019–2020 MMP cycles were collected from June of each cycle year through May of the following year (6/2019–5/2021). A structured questionnaire was administered either face-to-face or through phone interviews to collect demographic, behavioral, and clinical characteristics, such as need for and receipt of ancillary services. The interviews were conducted by trained interviewers. MMP is conducted as a part of routine surveillance and is considered non-research. Jurisdictions received approval from their local institutional review boards, if needed, and informed consent was obtained from all participants.

Measures

HIV ancillary services were defined as services that support retention in routine HIV medical care and viral suppression.⁹ Participants were asked about receipt of and need for individual HIV ancillary services related to HIV support services (case management, medicine through the AIDS Drug Assistance Program [ADAP], ART adherence support, HIV peer group support, patient navigation services), non-HIV medical services (dental care, mental health services, drug/alcohol counseling or treatment, domestic violence services), and subsistence services (transportation services, Supplemental Nutrition Assistance Program [SNAP] or Women, Infants, and Children Nutrition Program [WIC] services, meal or food services, shelter or housing services).⁹ The inclusion of these services in the MMP questionnaire was informed by input from the MMP Provider and Community Advisory Boards, as well as services commonly funded by the Ryan White HIV/AIDS Program (RWHAP), the medical and support services safety net program for PWH within the United States. These services are the standard set of services that are assessed annually in the CDC's behavioral and clinical surveillance report.⁹ Unmet need was defined as needing but not receiving a given ancillary service, among those with any need for that service, in the previous 12 months.⁹

Unstable housing or homelessness was defined as experiencing unstable housing (i.e., moving two or more times, being evicted, or moving in with others due to financial problems) or homelessness (i.e., living on the street, in a shelter, in a Single Room Occupancy hotel, or in a car) during the past 12 months. Health care coverage for care or medications was categorized as any private insurance, public insurance only (excluding assistance through the RWHAP or ADAP), and no coverage or assistance through RWHAP or ADAP only. Health care coverage was stratified by persons aged 55 – 64 and 65 years. Attendance at a RWHAP facility was based on the most frequent source of HIV care where medical records were abstracted. Disability was based on reports of any physical, mental, or emotional disability (i.e., participants were asked if they had difficulty with any of the following: deafness or serious difficulty hearing; blindness or serious difficulty seeing even

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when wearing glasses; serious difficulty concentrating, remembering, or making decisions; serious difficulty walking or climbing stairs; difficulty dressing or bathing; difficulty doing errands alone). Household poverty threshold was defined using the Department of Health and Human Services poverty guidelines.²¹ Symptoms of depression and generalized anxiety disorder were assessed using previously validated scales (Patient Health Questionnaire-8 and Generalized Anxiety Disorder-7, respectively) and categorized based on clinically meaningful cutpoints; depression and anxiety were based on symptoms experienced in the two weeks prior to interview.^{22, 23} Unless otherwise noted, all characteristics were based on the 12 months prior to interview.

Analysis

Using data from the 2019–2020 cycles on cisgender persons with HIV aged 55 years (N=3,200), we first described the profile of demographic characteristics and social determinants of health among cisgender men with HIV (N=2,391) and cisgender women with HIV (N=809). We presented weighted percentages and 95% confidence intervals (CIs) for categorical variables. Next, we calculated the weighted percentage of persons who had at least one unmet need for any ancillary services among those with any need for a service, and percentages of persons with an unmet need for individual ancillary services among those with any need for that service. Results were presented overall and among cisgender men and cisgender women with HIV. Among cisgender men and women, the prevalence of having

1 unmet need was further stratified by selected characteristics. Transgender persons were not included in the analysis due to small sample size (N = 166). To quantify differences in unmet needs by selected characteristics, we estimated prevalence ratios (PRs) and 95% CIs using predicted marginal means. Data were weighted to adjust for person nonresponse and post-stratified to known population totals by age, race/ethnicity, and sex from the National HIV Surveillance System.²⁰ All analyses were conducted using SAS, version 9.4 (SAS Institute, Cary, NC), and SAS-callable SUDAAN, version 11.0.3 (RTI International, NC).

Results

Selected characteristics

Of cisgender PWH aged 55 years, an estimated 77.1% (95% CI: 74.5–79.7) of persons were cisgender male and 22.9% (95% CI: 20.3–25.5) were cisgender female. Of cisgender persons with diagnosed HIV aged 55 years, the plurality was aged 55–59 years (42.3%). Thirty-nine percent identified as Black or African American (hereafter referred to as Black) and 37.1% identified as White (Table 1). Over half were publicly insured only (60.4%) and over half had more than a high school education (58.5%). Approximately one in 10 were unemployed (10.3%) and a third were unable to work (32.7%); 40.0% had household incomes below the federal poverty level. Estimates of all selected characteristics are listed overall and by gender in Table 1.

Unmet needs for HIV ancillary services

Overall, 37.7% of cisgender PWH aged 55 years had one or more unmet need for ancillary services, with 8.4% (7.2%–9.6%) and 6.7% (5.8%–7.6%) having two and three or more unmet needs, respectively (Supplemental figure). Among those with need for ancillary

services, 16.6% had 1 unmet needs for HIV support services, 26.9% had 1 unmet needs for non-HIV medical services, and 26.7% had 1 unmet needs for subsistence services. Unmet needs were highest for domestic violence services (43.3%), HIV peer group support (29.8%), and dental care (23.9%); however, the wide confidence interval surrounding the proportion needing domestic violence services indicate that this result should be interpreted with caution. There were no significant differences between cisgender men and women in any category or service type of unmet need. (Table 2)

Differences in unmet needs by selected characteristics

Among all cisgender PWH with needs for HIV ancillary services, the prevalence of having 1 unmet need varied by several characteristics. For instance, persons aged 65 years were less likely to have any unmet need when compared with persons aged 55-59 years (PR: 0.81; 95% CI: 0.69-0.95). The prevalence of having 1 unmet need was higher among Black persons (PR: 1.42; 95% CI: 1.26-1.60), Hispanics/Latinos (PR: 1.35; 95% CI: 1.14-1.60), and persons classified as multiracial or “other” race and ethnicity category (PR: 1.63; 95% CI: 1.29-2.05) when compared with White people. People with the following characteristics had higher levels of unmet needs compared with cisgender persons without these characteristics: experienced unstable housing or homelessness, had a history of incarceration, had non-private insurance, were living with a disability, rated their physical health as less than excellent, went without food due to lack of money in the past 12 months, were unemployed or unable to work, experienced symptoms of major or other depression, or experienced mild, moderate, or severe anxiety. The strength of the aforementioned associations varied by characteristic. Mixed results were seen with the household poverty threshold. When compared with persons <100% federal poverty line (FPL), persons 100-138% FPL had moderately increased prevalence and persons 400% FPL had substantially decreased prevalence of unmet need; there was no significant difference when compared with persons 139-399% FPL. (Table 3) While these associations mostly held for cisgender men, the results varied for women. For example, among cisgender women, there was no difference in unmet need by age group, Black or Hispanic race or ethnicity, education, insurance type, or household poverty level. (Table 3) However, the lack of difference may be partially attributed to small cell sizes and should be further explored in additional studies.

Discussion

During 2019–2020, a substantial proportion (38%) of cisgender persons with diagnosed HIV aged 55 years had unmet need for one or more HIV ancillary service. Unmet needs were high regardless of demographic or other characteristic but were highest among those with some key quality of life (QOL) indicators such as housing instability and self-rated physical health.²⁴ The most common unmet needs were for HIV peer group support, dental care, and shelter or housing services.

Unmet needs were highest among persons experiencing major depression (71.8%), moderate/severe anxiety (63.4%), food insecurity (61.4%), housing instability (59.4%), and unemployment (54.2%), and those who perceived their general health to be poor

(54.2%). The NHAS 2022 – 2025 has designated most of the aforementioned conditions as QOL indicators because each can have detrimental effects on physical, social, and mental wellbeing; unmet mental health service need has also been designated as a QOL indicator.²⁵ Although it is, perhaps, not surprising that persons with poor QOL indicators have unmet needs for ancillary services, we found that unmet need amongst these groups was extensive, with more than half of PWH with any one of these indicators having an unmet HIV ancillary service need. Given that unmet need for ancillary services has been associated with poor retention in HIV care, adherence to ART, and viral suppression (with progressively worse outcomes with increasing numbers of unmet needs) and that unmet need amongst these groups is considerable, particular attention to regularly identifying and addressing the service needs of these groups is warranted to improve well-being and optimal care engagement.^{10, 11} In addition to the relevance of these findings to NHAS (2022 –2025) progress, these findings also come on the heels of the Joint United Nations Programme on HIV/AIDS (UNAIDS) 2025 HIV Prevention goals which include a target that 90% of PWH are linked to the people-centered context-specific integrated services they need for their overall health and wellbeing.²⁶ This additional target acknowledges the role that social factors have in perpetuating illness and represents a paradigm shift that goes beyond viral suppression to describe the health of PWH to address the whole person to promote quality of life.^{24, 26}

Characteristics of older PWH with unmet needs followed familiar patterns with larger proportions of non-White persons having unmet needs compared with White persons. Despite cisgender men and cisgender women having different profiles of demographic characteristics and social determinants of health, there were no significant differences in unmet need between cisgender men and women. We did, however, find that persons aged 65 years were less likely to have any unmet need as compared with persons aged 55-59 years. This finding bucks the common trend of increased negative outcomes with increased age and may reflect age-related improvements in access to services. For example, many services that older people use (e.g., Medicare, community-based support services) have specific age-related eligibility criteria.

Overall, compared to privately insured PWH aged 55 years, unmet needs were higher among their counterparts who were publicly insured only or who were uninsured or wholly relied on the RWHAP for their care. This finding is similar to findings from a 2022 MMP study of unmet needs by healthcare coverage among all adults with diagnosed HIV.¹⁵ High levels of unmet needs seen by insurance status might be due to greater disease burden associated with being un/underinsured or being able to access only public safety-net payers' programs. For example, an analysis of the HIV Outpatient Study (a multicenter prospective cohort study) found that publicly insured PWH who were both taking ART and virally suppressed were approximately twice as likely as privately insured PWH to have a variety of co-morbid conditions.^{27, 28} Persons with co-morbidities might need more ancillary services to effectively manage their health. Additionally, healthcare coverage itself might be an indicator of a variety of socioeconomic issues that can lead to greater need for ancillary services.²⁹ This may partially explain why RWHAP patients, who generally have better clinical outcomes than non-RWHAP patients, still had high levels of unmet needs.³⁰ For example, nearly two-thirds of RWHAP clients live at or below 100% FPL and a substantial

portion are unstably housed.³⁰ Additionally, although the RWHAP provides funding to communities for HIV support services, funding is limited and local programs might not be able to serve all who qualify for services or meet the needs of all clients served.¹⁵ While overall unmet needs were higher among PWH aged 55 years who were publicly insured only or who were uninsured or wholly relied on the RWHAP for their care, we found no difference in unmet needs by insurance status among cisgender women. This lack of difference may, in part, be due to small sample sizes.

Overall, unmet needs were high among PWH <400% FPL. This result is perhaps unsurprising given that a one-person household income of 100% – 399% FPL, in 2021, represented an annual income of only \$12,880 – \$51,391 and studies have demonstrated an association between low income and unmet needs.^{15, 31, 32} Although the prevalence of unmet need among persons with household incomes of 100% – 138% FPL and 139% – 399% FPL were slightly higher and not statistically different than those <100% FPL, respectively, unmet need among each group was substantial. While the reason behind this pattern of association is unclear, it is possible that persons with household income of 100% – 138% FPL do not qualify for income-based services that would otherwise meet some of their unmet needs causing them to have higher unmet needs than persons below 100% FPL. Conversely, persons with household incomes of 139-399% FPL may represent a combination of persons who can and cannot financially fulfill their needs but whose income is too high to qualify for income-based services.

The most common unmet needs were for HIV peer group support (29.8%), dental care (23.9%), and shelter or housing services (21.9%). As PWH age, they might experience age-related stigma (i.e., ageism) which, like other forms of stigma, is associated with increased social isolation and loneliness.^{33, 34} Consequently, older PWH might experience an intersection of stigma due to both their HIV status and age which could lead to challenges accessing social support and could compound health effects.^{34, 35} The large proportion of older PWH with unmet need for peer group support is concerning given that social conditions such as isolation, stigma, and ageism can affect older PWH's engagement in care.³⁴ There are existing federal programs that address dental care and housing needs, although these programs have limited ability to meet the needs of all those that qualify. For example, while most states provide emergency dental services for adults with Medicaid, less than half provide comprehensive dental care and there are no minimum Medicaid requirements for adult dental coverage.³⁷ Although the RWHAP may support oral health services through any of its program parts, Part F specifically reimburses dental or dental hygiene education programs for providing oral health care to PWH.³⁸ Part F funds are limited; in 2022, total funds for reimbursement were less than \$10 million.³⁸

The Department of Housing and Urban Development operates a variety of low-income housing assistance programs including the Housing Opportunities for Persons With AIDS (HOPWA) program, which grants funds to nonprofit organizations and local governments to provide housing and services for PWH, and Section 8, which subsidizes housing for very low-income families regardless of HIV status.^{39, 40} Both programs, however, are unable to reach all that qualify and have limited funding for those who do.⁴¹ Expanding housing assistance for older persons could help to address these needs.

Also concerning is the high unmet need for patient navigation services. As PWH age, frequency of co-morbidities and medication side effects and interactions increase, making medical care more complicated.^{5, 6, 27} Age-related changes, including HIV-associated neurocognitive disorders can affect an older person's ability to think or remember, which might negatively affect their ability to navigate the healthcare system at a time when their medical needs have become more complex.⁴²

While several characteristics were associated with unmet needs in cisgender men, this was not the case for cisgender women. The lack of association with most study characteristics and unmet needs among cisgender women might, at least partially, be explained by small sample sizes which decreased our ability to detect a difference. It is also possible that the lack of association was caused by unmeasured confounders. Future studies assessing differences in unmet needs for HIV ancillary services by gender could consider inclusion of other variables not related to social determinants of health that could explain differences in needs among cisgender women, and when possible, ensure a robust sample size for cisgender women to limit the chance of Type II error.

Due to the compounded burden of HIV, co-morbidities, and geriatric conditions, comprehensive HIV care programs will become increasingly important for older PWH because of their potential to address both medical and ancillary service needs through in-house and wrap around services. The RWHAP is one example of a comprehensive care model that addresses multiple morbidities and ancillary service needs in a single setting.⁴³ Other examples are consult model programs where a multidisciplinary team of consultants performs whole-person assessments. An example of such a program is the Golden Compass Clinical Care program at San Francisco General Hospital. The program consists of geriatrics and cardiology consult clinics co-located with the hospital's outpatient HIV clinic.⁴⁴ The program focuses services on cardiology and neurocognition, bone health and fitness, dental, hearing and vision, and social and community-building activities. Initial evaluations of the program have shown improved functional ability and quality of life for its older PWH clients, and the program has high acceptability.^{44, 45} Expansion of such comprehensive care programs could help to address many unmet needs of older PWH.

The National HIV/AIDS Strategy 2022 – 2025 acknowledges the need for greater focus on the needs of older PWH. Currently, there are several federal agencies working toward addressing challenges faced by older persons with HIV. For example, the Health Resources and Services Administration (HRSA) is funding RWHAP Special Projects of National Significance to implement, evaluate, and disseminate emerging strategies that comprehensively screen and manage comorbidities, geriatric conditions, behavioral health, and psychosocial needs of older persons with HIV.⁴⁶ HRSA is also collaborating with the Administration for Community Living to increase awareness of and coordination among federal and state agencies' services that improve the psychosocial and health outcomes of older PWH.²⁵ The Administration for Community Living is looking into ways to strengthen the capacity of its aging services network to meet the needs of older PWH through coordination across its multiple Technical Assistance resource centers. In addition to supporting HIV and aging-specific research, the National Institutes of Health will support development of clinical guidelines related to HIV across the lifespan. This study's findings

can be used to help focus effective interventions to improve access to necessary HIV ancillary services. Results can also serve as a basis to evaluate, adapt, and enhance systems of care to ensure equitable delivery of services to older PWH across the nation.

The results of this analysis should be viewed considering its limitations. First, MMP participant characteristics determined through interview were based on self-report and were, therefore, subject to information bias. Second, given the cross-sectional design of MMP, reported associations do not establish causality. Third, MMP response rates were suboptimal. However, results were adjusted for nonresponse and post-stratified to known population totals by age, race/ethnicity, and gender from the National HIV Surveillance System using established, standard methodology. Because of the way the data were collected, partially met needs (e.g., a person received housing assistance for part of but not all of the year) were considered met needs; our estimates of unmet needs should, therefore, be considered conservative. The analysis was limited in the ability to detect differences in the prevalence of unmet need among cisgender women due to small cell sizes. Lastly, unmet needs among older transgender PWH were not assessed.

We found substantial unmet need for ancillary services among diagnosed PWH aged 55 years, which could jeopardize care and treatment outcomes and negatively affect well-being. Additional concerted efforts by state and local health departments, federal entities, private providers, and community partners are necessary to reduce unmet needs. While describing older PWH's unmet needs is a first step in planning, further characterization and concerted strategic action is necessary to improve service provision and quality of life in this population.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Conflicts of Interest and Source of Funding:

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Selected characteristics of cisgender men and women with diagnosed HIV aged 55 years—Medical Monitoring Project, United States, 2019–2021

Table 1:
Table 1:

	Overall N = 3,200		Cisgender men N = 2,391		Cisgender women N = 809	
	n	wt col % (95% CI)	n	wt col % (95% CI)	n	wt col % (95% CI)
Age (at time of interview, years)						
55–59	1,339	42.3 (40.5–44.2)	983	41.6 (39.1–44.0)	356	44.9 (41.0–48.9)
60–64	954	31.1 (29.2–33.0)	711	31.1 (29.0–33.3)	243	31.0 (27.8–34.1)
65	907	26.6 (24.7–28.5)	697	27.3 (25.1–29.5)	210	24.1 (20.2–28.1)
Race [‡]/ethnicity						
Black/African American	1,222	39.0 (32.9–45.1)	733	32.6 (27.3–37.8)	489	60.6 (52.3–68.8)
Hispanic/Latino [†]	602	18.9 (12.8–25.0)	439	19.1 (13.7–24.4)	163	18.5 (9.1–27.8)
White	1,207	37.1 (32.3–41.9)	1,096	43.5 (38.8–48.2)	111	15.5 (11.6–19.4)
Multiple races/other	169	5.0 (3.9–6.1)	123	4.9 (3.7–6.1)	46	5.5 (3.4–7.5)
Educational attainment						
Less than high school	566	17.3 (15.4–19.3)	326	14.3 (12.2–16.4)	240	27.5 (24.2–30.9)
High school diploma or GED [‡]	761	24.2 (22.4–26.0)	517	22.2 (20.2–24.3)	244	30.7 (27.3–34.2)
More than high school	1,858	58.5 (55.8–61.2)	1,536	63.5 (60.7–66.2)	322	41.7 (37.7–45.7)
Unstable housing or homelessness[§] (past 12 months)						
Yes	350	11.0 (9.6–12.4)	233	9.9 (8.4–11.5)	117	14.5 (11.0–17.9)
No	2,836	89.0 (87.6–90.4)	2,147	90.1 (88.5–91.6)	689	85.5 (82.1–89.0)
Incarcerated for >24 hours (past 12 months)						
Yes	42	1.4 (1.0–1.9)	38	1.7 (1.2–2.3)	—	—
No	3,144	98.6 (98.1–99.0)	2,342	98.3 (97.7–98.8)	—	—
Health insurance coverage (past 12 months)						
Overall						
Any private	1,102	33.5 (31.4–35.5)	916	36.6 (34.2–39.1)	186	22.9 (19.1–26.8)
Public only, excluding RWHAP//ADAP// only	1,897	60.4 (58.2–62.7)	1,325	57.4 (54.6–60.2)	572	70.7 (67.1–74.4)
No coverage or RWHAP//ADAP// only	152	6.1 (4.9–7.3)	113	6.0 (4.7–7.3)	39	6.3 (3.7–8.9)

		Overall N = 3,200		Cisgender men N = 2,391		Cisgender women N = 809	
		n	wt col % (95% CI)	n	wt col % (95% CI)	n	wt col % (95% CI)
Aged 55–64 years							
Any private	797	34.5 (31.9–37.1)	665	38.1 (35.0–41.2)	132	22.8 (18.2–27.3)	
Public only, excluding RWHAP//ADAP// only	1,315	57.5 (54.6–60.4)	893	53.8 (50.3–57.3)	422	69.2 (65.0–73.5)	
No coverage or RWHAP//ADAP// only	147	8.1 (6.5–9.7)	110	8.1 (6.4–9.8)	37	8.0 (4.7–11.3)	
Aged 65 years							
Any private	305	30.8 (27.9–33.8)	251	32.7 (29.2–36.2)	54	23.6 (17.8–29.3)	
Public only, excluding RWHAP//ADAP// only	582	68.7 (65.6–71.7)	432	66.8 (63.2–70.5)	150	75.6 (69.9–81.3)	
No coverage or RWHAP//ADAP// only	—	—	—	—	—	—	—
Attendance at a RWHAP// facility (past 12 months)							
Yes	1,888	62.9 (55.4–70.4)	1,310	59.4 (51.5–67.3)	578	74.4 (68.3–80.6)	
No	1,093	37.1 (29.6–44.6)	911	40.6 (32.7–48.5)	182	25.6 (19.4–31.7)	
Any disability							
Yes	1,550	47.8 (45.3–50.2)	1,038	43.2 (40.7–45.7)	512	63.3 (59.6–67.0)	
No	1,632	52.2 (49.8–54.7)	1,340	56.8 (54.3–59.3)	292	36.7 (33.0–40.4)	
Perception of general health							
Poor	218	7.1 (5.7–8.5)	148	6.7 (5.0–8.3)	70	8.7 (6.3–11.2)	
Fair	869	26.1 (24.4–27.8)	568	23.1 (21.3–25.0)	301	36.0 (32.0–39.9)	
Good	1,138	36.5 (34.4–38.5)	878	37.7 (35.2–40.3)	260	32.2 (28.5–35.9)	
Very good	636	20.1 (18.2–21.9)	518	21.3 (19.1–23.4)	118	16.0 (13.2–18.7)	
Excellent	326	10.3 (8.7–11.8)	269	11.2 (9.4–12.9)	57	7.2 (5.3–9.1)	
Went without food due to lack of money (past 12 months)							
Yes	415	13.4 (11.7–15.1)	291	13.1 (11.3–14.8)	124	14.5 (11.4–17.6)	
No	2,772	86.6 (84.9–88.3)	2,091	86.9 (85.2–88.7)	681	85.5 (82.4–88.6)	
Employment status							
Employed	1,061	33.9 (31.8–35.9)	831	35.3 (33.2–37.4)	230	29.1 (24.2–33.9)	
Unemployed	322	10.3 (8.9–11.7)	253	10.8 (9.2–12.5)	69	8.4 (6.3–10.5)	
Unable to work	1,029	32.7 (29.5–35.9)	661	28.4 (25.8–31.1)	368	47.1 (41.0–53.2)	

	Overall N = 3,200			Cisgender men N = 2,391			Cisgender women N = 809		
	n	wt col % (95% CI)	n	wt col % (95% CI)	n	wt col % (95% CI)	n	wt col % (95% CI)	n
Student	—	—	—	—	—	—	0 ^{**}	—	—
Retired	758	22.9 (20.8–25.1)	624	25.2 (22.7–27.6)	134	15.5 (12.5–18.4)			
Household income with respect to the federal poverty level (past 12 months)									
<100% FPL ^{††}	1,188	40.0 (36.5–43.5)	752	34.6 (31.2–38.0)	436	58.8 (53.8–63.7)			
100–138% FPL ^{††}	370	12.4 (11.0–13.7)	280	12.3 (10.7–13.8)	90	12.7 (9.9–15.4)			
139–399% FPL ^{††}	940	32.3 (30.0–34.6)	770	34.3 (31.8–36.8)	170	25.4 (21.1–29.6)			
400% FPL ^{††}	456	15.3 (13.5–17.2)	431	18.8 (16.6–21.0)	25	3.2 (1.8–4.6)			
Symptoms of depression (past 2 weeks)^{‡‡}									
Major	213	6.7 (5.5–7.9)	138	6.1 (4.8–7.4)	75	8.6 (6.1–11.1)			
Other	228	6.7 (5.7–7.6)	163	6.0 (5.0–7.0)	65	8.8 (5.7–11.9)			
None	2,710	86.7 (85.1–88.2)	2,056	87.9 (86.2–89.5)	654	82.6 (79.0–86.1)			
Symptoms of generalized anxiety disorder (past 2 weeks)^{§§}									
Moderate/Severe	347	10.7 (9.0–12.4)	238	9.8 (8.2–11.5)	109	13.6 (10.3–16.9)			
Mild	133	4.1 (3.4–4.9)	102	4.2 (3.2–5.2)	31	3.8 (2.5–5.2)			
None	2,675	85.2 (83.1–87.2)	2,019	85.9 (83.8–88.1)	656	82.6 (79.0–86.1)			

Notes: Estimates with a coefficient of variation 0.30 or those based on a denominator sample size <30 were considered to be unstable and, therefore, were suppressed. Column "n" for a given characteristic may not add up to the overall "N" due to missing data. *Race categories are mutually exclusive †Hispanic/Latino persons could be of any race ‡GED = General Educational Development (high school diploma alternative) §Unstable housing or homelessness was defined as experiencing unstable housing (i.e., moving two or more times, being evicted, or moving in with others due to financial problems) or homelessness (i.e., living on the street, in a shelter, in a Single Room Occupancy hotel, or in a car) during the past 12 months. ||RWPHAP = Ryan White HIV/AIDS Program ¶¶ADAP = AIDS Drug Assistance Program **Estimates of 0% or 100% have no associated 95% CI and should be interpreted with caution ††FPL = Federal Poverty Level ‡‡Responses to the items on the Patient Health Questionnaire-8 (PHQ-8) were used to define "major depression" and "other depression" according to criteria from the DSM-IV. "Major depression" was defined as having at least five symptoms of depression; "other depression" was defined as having 2–4 symptoms of depression. The PHQ-8 classification "other depression" comprises the DSM-IV categories of dysthymia and depressive disorder, not otherwise specified, which includes minor or subthreshold depression. §§Responses to the items on the Generalized Anxiety Disorder-7 (GAD-7) questionnaire were used to define "mild anxiety," "moderate anxiety," and "severe anxiety" according to criteria from the DSM-IV. "Severe anxiety" was defined as having a score of 15 on the GAD-7 scale; "moderate anxiety" was defined as having a score of 10–14; and "mild anxiety" was defined as having a score of 5–9.

Table 2:
 Percentages of cisgender men and women with HIV aged 55 years with unmet needs for individual HIV ancillary services among those with any need for that service, Medical Monitoring Project, United States, 2019–2021

	Overall N = 3,107		Cisgender men N = 2,313		Cisgender women N = 794		P-value
	n	wt row % (95% CI)	n	wt row % (95% CI)	n	wt row % (95% CI)	
Any unmet need	1,119	37.7 (35.3–40.1)	805	36.5 (33.7–39.3)	314	41.6 (36.3–46.9)	0.88 (0.75–1.02)
1 HIV support services	363	16.6 (14.7–18.5)	261	16.2 (14.2–18.3)	102	17.5 (13.5–21.5)	0.93 (0.72–1.19)
HIV case management	153	9.5 (7.6–11.4)	103	8.8 (6.8–10.8)	50	11.3 (7.6–15.0)	0.78 (0.55–1.13)
Medicine through ADAP*	56	4.8 (3.6–6.0)	44	4.8 (3.4–6.1)	—	—	—
Adherence support	14	1.1 (0.5–1.7)	—	—	—	—	—
HIV peer group support	155	29.8 (24.4–35.1)	112	30.1 (24.8–35.3)	43	29.0 (18.6–39.4)	1.04 (0.73–1.48)
Patient navigation services	93	18.7 (14.2–23.1)	60	18.6 (13.5–23.8)	33	18.7 (12.0–25.5)	1.00 (0.66–1.50)
1 non-HIV medical services	690	26.9 (24.6–29.2)	502	26.1 (23.6–28.6)	188	29.4 (24.3–34.5)	0.89 (0.73–1.08)
Dental care	563	23.9 (21.5–26.2)	412	23.1 (20.5–25.8)	151	26.5 (21.1–32.0)	0.87 (0.69–1.11)
Mental health services	186	16.7 (13.7–19.8)	134	16.9 (13.6–20.3)	52	16.2 (11.5–20.9)	1.04 (0.77–1.42)
Drug/alcohol counseling or treatment	22	11.0 (4.9–17.0)	—	—	—	—	—
Domestic violence services	13	43.3 (22.0–64.6)†	—	—	—	—	—
1 Subsistence services	501	26.7 (23.9–29.6)	338	27.2 (24.2–30.1)	163	25.6 (21.1–30.2)	1.06 (0.89–1.26)
Transportation services	154	15.7 (12.8–18.6)	105	16.3 (13.0–19.6)	49	14.5 (9.6–19.3)	1.12 (0.78–1.63)
SNAP or WIC‡	210	14.6 (12.0–17.1)	148	15.8 (12.6–19.0)	62	12.0 (8.5–15.5)	1.32 (0.93–1.86)
Meal or food services§	149	13.8 (11.4–16.2)	91	13.8 (10.8–16.9)	58	13.7 (10.0–17.5)	1.01 (0.71–1.44)
Shelter or housing services	161	21.9 (18.2–25.7)	110	24.2 (19.5–28.8)	51	17.5 (12.1–22.8)	1.38 (0.97–1.97)

Notes: Estimates with a coefficient of variation >0.30 or those based on a denominator sample size <30 were considered to be unstable and, therefore, were suppressed. Column “n” for a given characteristic may not add up to the overall “N” due to missing data. * ADAP = AIDS Drug Assistance Program †Estimates with an absolute CI width >30, estimates with an absolute CI width between 5 and 30 and a relative CI width >130% should be interpreted with caution. ‡SNAP or WIC = Supplemental Nutrition Assistance Program or Women, Infants, and Children Nutrition Program § Includes services such as soup kitchens, food pantries, food banks, church dinners, and food delivery services.

Prevalence of having 1 unmet need for an HIV ancillary service among cisgender men and women with diagnosed HIV aged 55 years who needed 1 service, overall and by selected characteristics, Medical Monitoring Project, United States, 2019–2021

Table 3:

	Overall N = 3,107				Cisgender men N = 2,313				Cisgender women N = 794			
	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value
Age (at time of interview, years)												
55–59	504	41.3 (36.9–45.7)	Reference		362	40.3 (35.3–45.2)	Reference		142	44.4 (36.5–52.2)	Reference	
60–64	334	36.3 (32.1–40.5)	0.88 (0.74–1.04)	0.140	237	35.6 (30.8–40.4)	0.88 (0.72–1.08)	0.236	97	38.6 (31.7–45.4)	0.87 (0.71–1.06)	0.169
65	281	33.6 (29.8–37.4)	0.81 (0.69–0.95)	0.011	206	31.8 (27.0–36.6)	0.79 (0.65–0.96)	0.020	75	40.3 (33.0–47.6)	0.91 (0.72–1.14)	0.414
Race */ethnicity												
Black/African American	474	42.4 (38.6–46.1)	1.42 (1.26–1.60)	<0.001	296	43.9 (39.3–48.4)	1.51 (1.33–1.73)	<0.001	178	39.8 (33.3–46.2)	1.04 (0.80–1.34)	0.778
Hispanic/Latino [†]	224	40.4 (34.6–46.2)	1.35 (1.14–1.60)	<0.001	158	39.7 (33.1–46.3)	1.37 (1.13–1.66)	0.002	66	42.7 (33.5–51.9)	1.11 (0.78–1.59)	0.552
White	343	29.9 (26.6–33.1)	Reference		301	28.9 (25.7–32.2)	Reference		42	38.4 (27.4–49.4)	Reference	
Multiple races/other	78	48.6 (37.7–59.5)	1.63 (1.29–2.05)	<0.001	50	42.5 (31.1–53.8)	1.47 (1.12–1.92)	0.011	28	66.3 (49.4–83.2) [‡]	1.73 (1.15–2.60) [‡]	0.016 [‡]
Educational attainment												
Less than high school	216	39.9 (35.3–44.6)	1.12 (0.97–1.28)	0.120	133	42.5 (36.3–48.8)	1.24 (1.06–1.46)	0.010	83	35.6 (28.7–42.5)	0.82 (0.65–1.04)	0.094
High school diploma or GED [§]	288	41.0 (36.2–45.8)	1.15 (1.00–1.31)	0.049	192	39.5 (34.6–44.5)	1.16 (1.01–1.33)	0.042	96	44.4 (34.4–54.4)	1.02 (0.82–1.28)	0.863
More than high school	614	35.7 (32.9–38.5)	Reference		479	34.2 (31.1–37.3)	Reference		135	43.5 (37.6–49.4)	Reference	
Unstable housing or homelessness[¶] (past 12 months)												
Yes	191	59.4 (53.9–65.0)	1.70 (1.54–1.89)	<0.001	132	62.2 (54.8–69.5)	1.85 (1.60–2.15)	<0.001	59	53.2 (43.9–62.5)	1.34 (1.08–1.67)	0.012
No	926	34.9 (32.6–37.2)	Reference		671	33.5 (30.7–36.4)	Reference		255	39.6 (33.9–45.4)	Reference	
Incarcerated for >24 hours (past 12 months)												

	n	Overall N = 3,107			Cisgender men N = 2,313			Cisgender women N = 794				
		wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value
Yes	26	65.4 (49.9– 80.9) [‡]	1.76 (1.38–2.23)	<0.001 [‡]	24	67.2 (50.5– 83.9) [‡]	1.87 (1.45–2.42)	<0.001 [‡]	—	—	—	—
No	1,092	37.2 (34.9– 39.6)	Reference		780	35.9 (33.1– 38.7)	Reference		312	41.6 (36.3– 46.9)	Reference	
Health insurance coverage (past 12 months)												
Overall												
Any private	288	27.8 (24.6– 31.1)	Reference		218	25.4 (22.0– 28.8)	Reference		70	40.6 (32.3– 48.8)	Reference	
Public only, excluding RWHAP//ADAP ^{***} only	748	41.4 (38.6– 44.2)	1.49 (1.31–1.69)	<0.001	523	41.5 (38.3– 44.8)	1.64 (1.41–1.90)	<0.001	225	41.2 (35.5– 46.8)	1.01 (0.82–1.26)	0.894
No coverage or RWHAP//ADAP ^{***} only	67	51.1 (40.7– 61.4)	1.83 (1.50–2.24)	<0.001	50	50.6 (37.7– 63.6)	2.00 (1.53–2.60)	<0.001	17	52.4 (35.4– 69.5) [‡]	1.29 (0.91–1.84) [‡]	0.187 [‡]
Aged 55–64 years												
Any private	221	29.8 (25.8– 33.7)	Reference		167	26.9 (22.9– 31.0)	Reference		54	44.5 (34.7– 54.3)	Reference	
Public only, excluding RWHAP//ADAP ^{***} only	539	42.7 (39.2– 46.3)	1.44 (1.24–1.67)	<0.001	371	43.7 (39.7– 47.8)	1.62 (1.36–1.94)	<0.001	168	40.3 (33.8– 46.7)	0.91 (0.73–1.13)	0.389
No coverage or RWHAP//ADAP ^{***} only	65	50.7 (40.4– 61.0)	1.70 (1.38–2.10)	<0.001	49	50.3 (37.7– 62.9)	1.87 (1.41–2.47)	<0.001	16	52.1 (34.5– 69.7) [‡]	1.17 (0.81–1.70) [‡]	0.426 [‡]
Aged 65 years												
Any private	67	21.9 (17.4– 26.3)	Reference		51	20.5 (15.4– 25.6)	Reference		16	28.7 (16.2– 41.3)	Reference	
Public only, excluding RWHAP//ADAP ^{***} only	209	38.4 (33.5– 43.3)	1.75 (1.39–2.21)	<0.001	152	36.7 (30.5– 42.9)	1.79 (1.35–2.39)	<0.001	57	43.7 (35.0– 52.5)	1.52 (0.93–2.49)	0.076
No coverage or RWHAP//ADAP ^{***} only	—	—	—	—	—	—	—	—	—	—	—	—

		Overall N = 3,107				Cisgender men N = 2,313				Cisgender women N = 794			
	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value	
Attendance at a RWHAP facility (past 12 months)													
Yes	689	38.7 (35.7– 41.7)	1.12 (0.99–1.27)	0.069	467	37.7 (34.3– 41.1)	1.15 (0.99–1.33)	0.065	222	41.1 (35.2– 47.1)	0.97 (0.78–1.21)	0.792	
No	348	34.4 (30.9– 38.0)	Reference		280	32.9 (28.9– 36.9)	Reference		68	42.4 (33.5– 51.3)	Reference		
Any disability													
Yes	682	46.8 (43.3– 50.3)	1.61 (1.46–1.77)	<0.001	460	47.8 (43.5– 52.0)	1.71 (1.52–1.94)	<0.001	222	44.7 (38.9– 50.5)	1.25 (1.05–1.50)	0.011	
No	433	29.1 (26.7– 31.6)	Reference		343	27.9 (24.9– 30.8)	Reference		90	35.7 (28.6– 42.7)	Reference		
Perception of general health													
Poor	116	54.2 (46.8– 61.5)	2.60 (1.94–3.48)	<0.001	80	54.6 (45.8– 63.4)	2.70 (1.96–3.72)	<0.001	36	53.0 (39.6– 66.5)	2.21 (1.24–3.93)	0.006	
Fair	368	46.0 (40.4– 51.6)	2.21 (1.68–2.90)	<0.001	241	46.2 (40.2– 52.3)	2.29 (1.67–3.13)	<0.001	127	45.6 (37.0– 54.1)	1.90 (1.15–3.14)	0.007	
Good	407	38.2 (34.9– 41.5)	1.83 (1.41–2.38)	<0.001	305	37.4 (33.4– 41.3)	1.85 (1.36–2.50)	<0.001	102	41.4 (34.0– 48.8)	1.72 (1.03–2.87)	0.025	
Very good	165	28.3 (24.1– 32.6)	1.36 (1.00–1.85)	0.047	129	26.9 (22.4– 31.4)	1.33 (0.95–1.87)	0.096	36	34.5 (23.5– 45.4)	1.44 (0.79–2.61)	0.229	
Excellent	62	20.8 (15.5– 26.2)	Reference		49	20.2 (14.3– 26.2)	Reference		13	24.0 (12.8– 35.2)	Reference		
Went without food due to lack of money (past 12 months)													
Yes	237	61.4 (54.8– 68.1)	1.81 (1.60–2.04)	<0.001	171	63.7 (56.2– 71.2)	1.97 (1.71–2.27)	<0.001	66	54.7 (44.3– 65.1)	1.39 (1.12–1.72)	0.005	
No	882	34.0 (31.6– 36.4)	Reference		634	32.4 (29.5– 35.2)	Reference		248	39.4 (33.6– 45.1)	Reference		
Employment status													
Employed	306	31.1 (27.2– 35.1)	Reference		221	28.5 (24.1– 32.9)	Reference		85	41.8 (33.4– 50.2)	Reference		
Unemployed	158	54.2 (48.1– 60.2)	1.74 (1.46–2.07)	<0.001	128	56.3 (49.5– 63.1)	1.98 (1.62–2.40)	<0.001	30	45.1 (31.4– 58.7)	1.08 (0.77–1.51)	0.668	
Unable to work	419	42.6 (39.0– 46.3)	1.37 (1.18–1.58)	<0.001	264	42.3 (38.2– 46.3)	1.48 (1.25–1.76)	<0.001	155	43.3 (36.9– 49.7)	1.04 (0.85–1.26)	0.721	

	Overall N = 3,107				Cisgender men N = 2,313				Cisgender women N = 794			
	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value	n	wt row % (95% CI)	PR (95% CI)	P-value
Student	—	—	—	—	—	—	—	—	0 [‡]	—	—	—
Retired	230	32.7 (28.5– 36.8)	1.05 (0.88–1.25)	0.592	188	32.4 (27.6– 37.3)	1.14 (0.93–1.39)	0.214	42	34.0 (25.0– 43.0)	0.81 (0.59–1.11)	0.192
Household income with respect to the federal poverty level (past 12 months)												
<100% FPL ^{††}	480	41.8 (37.9– 45.8)	Reference		306	42.1 (38.1– 46.2)	Reference		174	41.3 (34.2– 48.4)	Reference	
100–138% FPL ^{††}	160	49.1 (43.8– 54.4)	1.17 (1.02–1.35)	0.032	124	49.9 (43.3– 56.5)	1.18 (1.00–1.40)	0.051	36	46.3 (35.2– 57.4)	1.12 (0.85–1.47)	0.418
139–399% FPL ^{††}	322	38.5 (34.3– 42.7)	0.92 (0.82–1.04)	0.167	261	38.0 (33.3– 42.6)	0.90 (0.77–1.05)	0.172	61	41.1 (32.6– 49.6)	1.00 (0.80–1.23)	0.966
400% FPL ^{††}	62	14.7 (10.0– 19.5)	0.35 (0.25–0.49)	<0.001	57	14.2 (9.3–19.1)	0.34 (0.24–0.47)	<0.001	—	—	—	—
Symptoms of depression (past 2 weeks)^{††††}												
Major	149	71.8 (65.0– 78.6)	2.13 (1.89–2.40)	<0.001	98	74.3 (65.7– 83.0)	2.26 (1.95–2.63)	<0.001	51	65.8 (51.5– 80.2)	1.78 (1.36–2.33)	<0.001
Other	114	53.8 (45.9– 61.7)	1.59 (1.36–1.86)	<0.001	81	51.7 (43.7– 59.6)	1.57 (1.33–1.87)	<0.001	33	58.5 (44.1– 72.9)	1.58 (1.24–2.02)	0.003
None	844	33.7 (31.3– 36.2)	Reference		618	32.8 (29.9– 35.7)	Reference		226	37.0 (31.6– 42.4)	Reference	
Symptoms of generalized anxiety disorder (past 2 weeks)^{††††}												
Moderate/Severe	210	63.4 (58.0– 68.8)	1.87 (1.68–2.09)	<0.001	145	64.8 (58.3– 71.3)	1.99 (1.73–2.29)	<0.001	65	60.1 (49.6– 70.7)	1.55 (1.26–1.92)	<0.001
Mild	64	49.0 (36.9– 61.0)	1.44 (1.14–1.83)	0.009	54	52.4 (38.6– 66.2)	1.61 (1.26–2.06)	0.002	10	36.3 (16.7– 56.0) [‡]	0.94 (0.53–1.65) [‡]	0.825 [‡]
None	837	33.9 (31.6– 36.2)	Reference		601	32.5 (29.7– 35.5)	Reference		236	38.7 (33.1– 44.2)	Reference	

Notes: Estimates with a coefficient of variation >0.30 or those based on a denominator sample size <30 were considered to be unstable and, therefore, were suppressed. Column “n” for a given characteristic may not add up to the overall “N” due to missing data. *Race categories are mutually exclusive †Hispanic/Latino persons could be of any race ‡Estimates with an absolute CI width >30 , estimates with an absolute CI width between 5 and 30 and a relative CI width $>130\%$, and estimates of 0% or 100% should be interpreted with caution. Associated statistical testing should also be interpreted with caution. §GED = General Educational Development (high school diploma alternative) ||Unstable housing or homelessness was defined as experiencing unstable housing (i.e., moving two or more times, being evicted, or moving in with others due to financial problems) or homelessness (i.e., living on the street, in a shelter, in a Single Room Occupancy hotel, or in a car) during the past 12 months ¶RWHA-P = Ryan White HIV/AIDS Program **ADAP = AIDS Drug Assistance Program ††FPL = Federal Poverty Line Level †††Responses to the items on the Patient Health Questionnaire-8 (PHQ-8) were used to define “major depression” and “other depression” according to criteria from the DSM-IV. “Major depression” was defined as having at least five symptoms of depression; “other depression” was defined as having 2–4 symptoms of depression. The PHQ-8 classification “other depression” comprises the DSM-IV categories of dysthymia and depressive disorder, not otherwise specified, which includes minor or

subthreshold depression. ¶ Responses to the items on the Generalized Anxiety Disorder-7 (GAD-7) questionnaire were used to define "mild anxiety", "moderate anxiety", and "severe anxiety," according to criteria from the DSM-IV. "Severe anxiety" was defined as having a score of 15 on the GAD-7 scale; "moderate anxiety" was defined as having a score of 10-14; and "mild anxiety" was defined as having a score of 10-9.