Research Trends in HIV and Aging

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Disclosures

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Consultant to Theratech

None of this work related to today's presentation

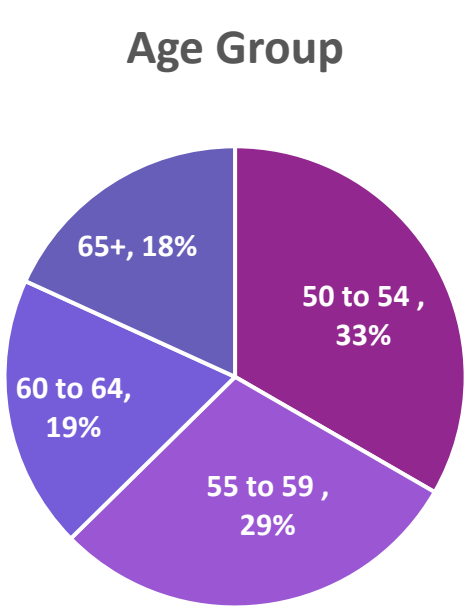
Introduction

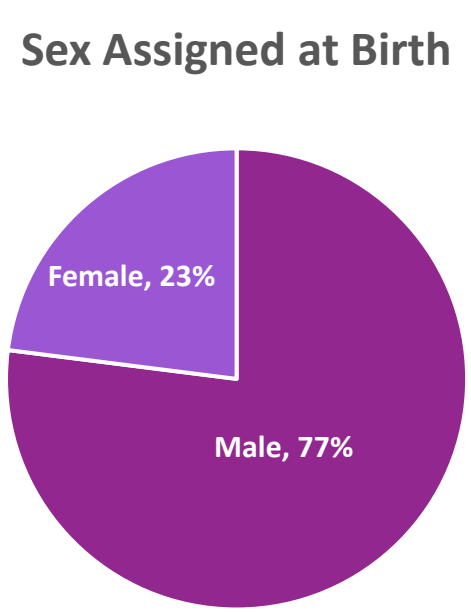
- Older people living with HIV (PLWH), defined as those age 50 and older, are increasingly dominating the HIV epidemic (High et al., 2012).
- Because of the success of anti-retroviral therapy (ART), people 50 and older now likely make up the majority of PLWH in the U.S. (High et al., 2012) and other countries where ART is accessible.
- The aging of the HIV epidemic is a global trend that is also being observed in low- and middle-income countries (Mahy, Autenrieth, Stanecki, & Wynd, 2014).
- The most current global estimate, from 2016, is that there were 5.7 million PLWH age 50 and older [range = 4.7 to 6.6 million] representing 16% of PLWH. This proportion is expected to rise to 21% by 2020 (Autenrieth et al., 2018).
- The growth in the population of older PLWH is also fueled by new HIV infections. In 2018, 17% of new HIV infections in the U.S. were diagnosed in people 50 and older (CDC, 2019).

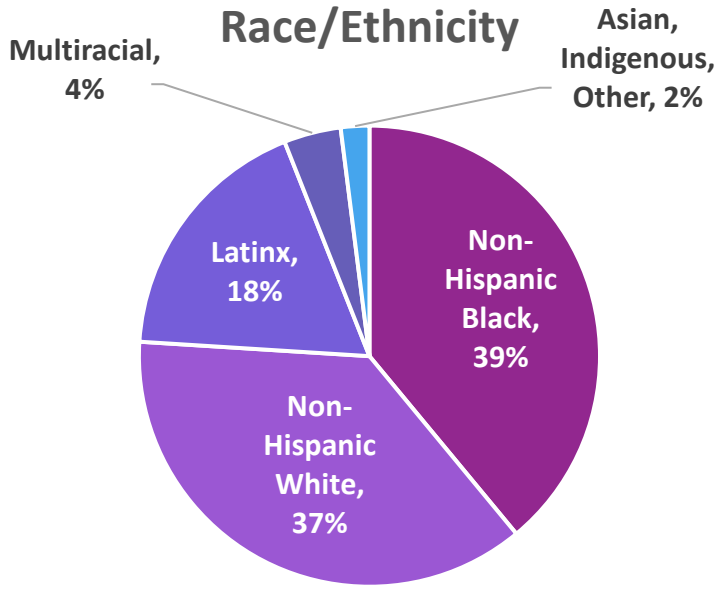
Profile of an Aging Population

HIV & Aging in the USA

- Older PLWH are not a monolithic group but represent a diverse population regarding age, gender identity, race and ethnicity, sexual orientation, and socio-economic position (Brennan-Ing, 2019).

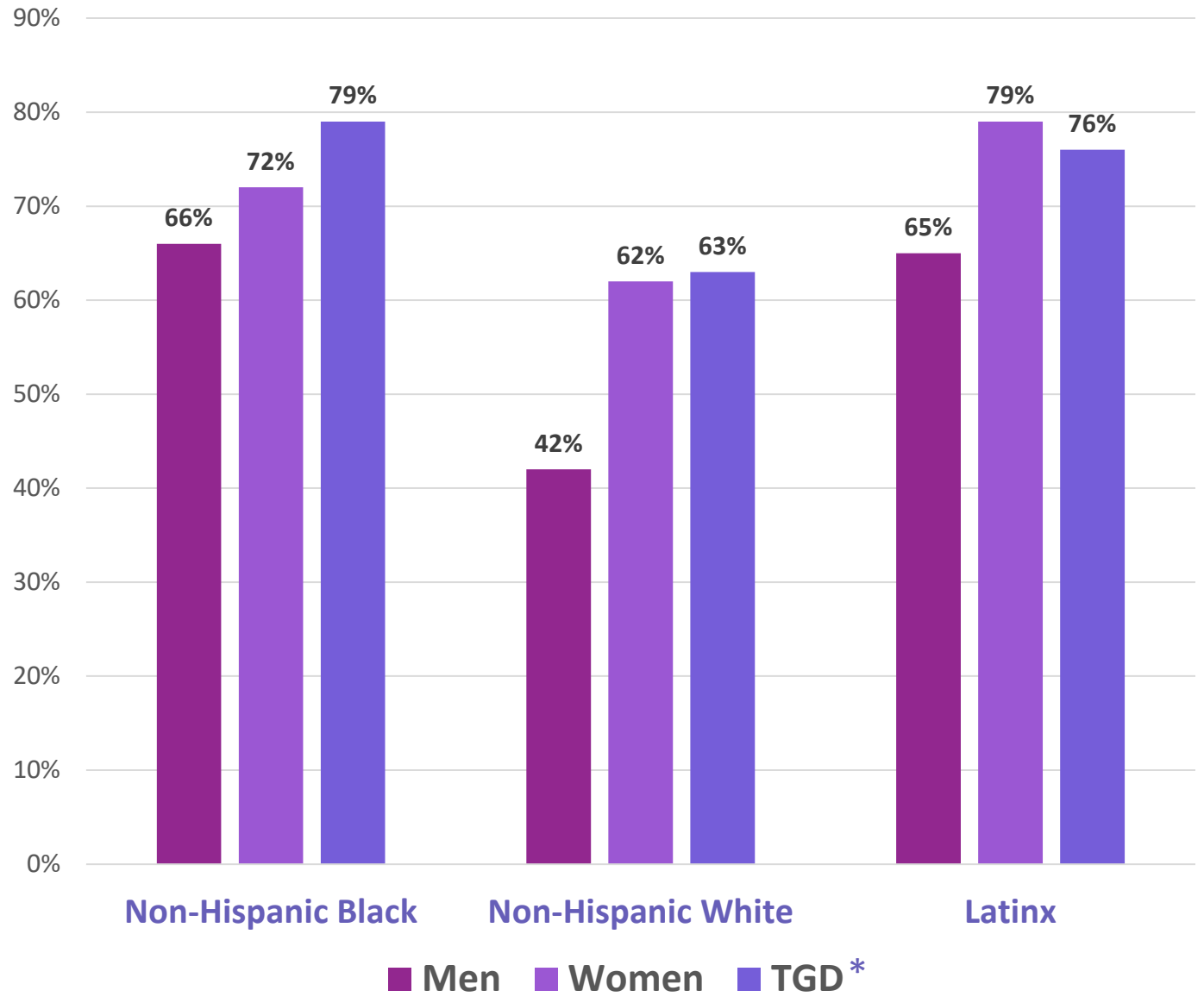






https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-23-5.pdf
http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html

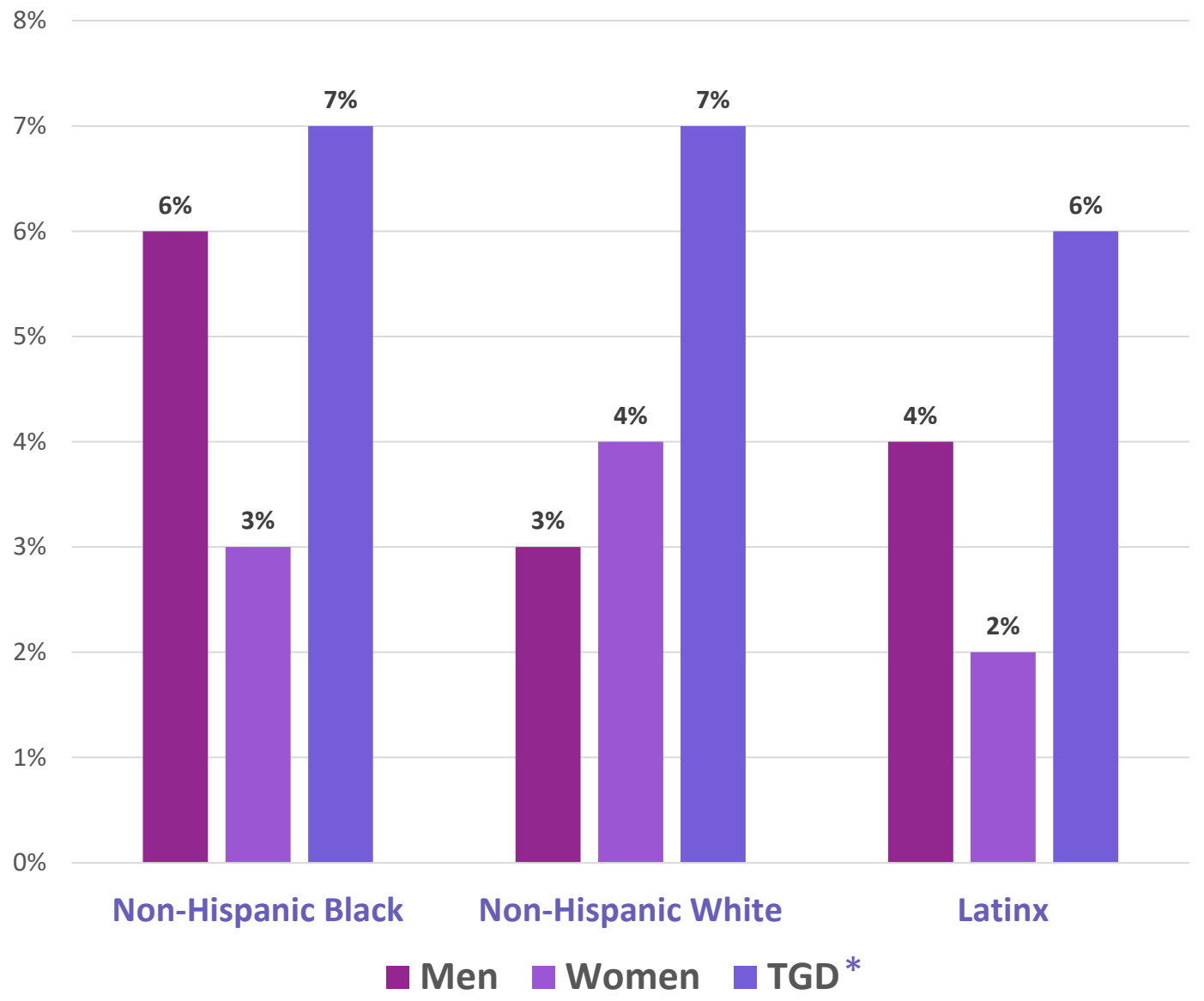
Ryan White HIV/AIDS Program Participants: Federal Poverty Level



* TGD: Transgender and Gender Diverse

Cohen, S., Klein, P. W., Matosky, M., Mills, R., Redwood, R. C., & Cheever, L. W. (2019). *Projected Growth and Needs of Aging People Living with HIV in HRSA's Ryan White HIV/AIDS Program*. Paper presented at the Conference on Retroviruses and Opportunistic Infections (CROI), Seattle, WA.

Ryan White HIV/AIDS Program Participants: Housing Instability



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HIV Long-term Survivors (LTS)

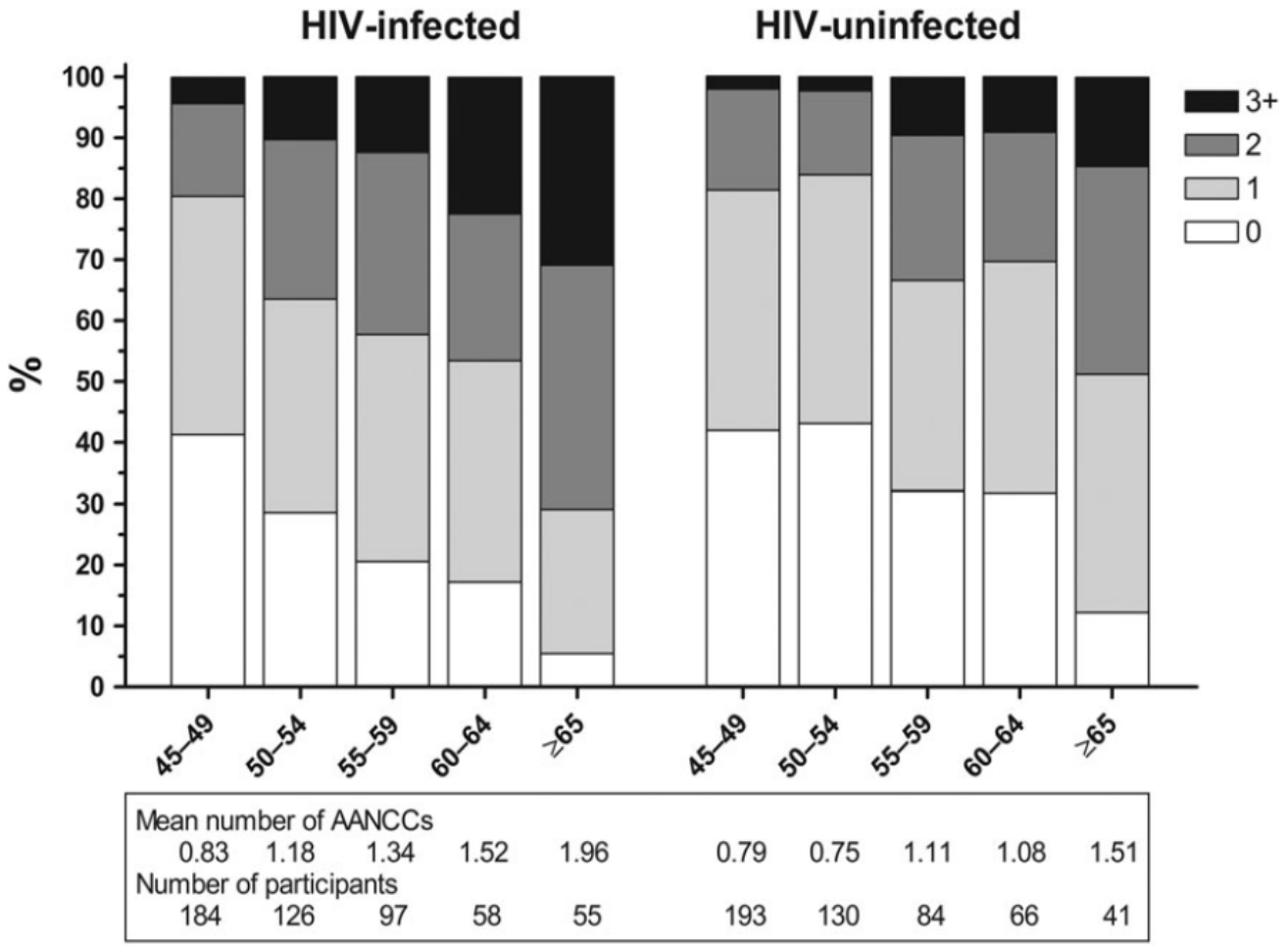
- People infected with HIV before effective ART was available (pre-ART LTS)
  - Infected with HIV when the virus was incurable and resulted in early death, and experienced significant trauma, with lasting effects on physical and mental health and overall well-being.
- People diagnosed after effective ART was available (i.e., 1996) and living with HIV for ten years or more (post-ART LTS)
  - Different experiences with HIV due to the availability of effective treatment.
  - Less likely to engage in activism, education, and support groups to deal with HIV infection compared to pre-ART LTS.
- LTS who were infected through childbirth and have been HIV-positive their entire lives and are relatively young adults
- HIV-negative LTS who have been profoundly affected by HIV, through caregiving, loss of significant others, or involvement in combatting the epidemic

The Well Project. (2018). Who are HIV Long-term Survivors? *Long-term Survivors of HIV.* Retrieved from https://www.thewellproject.org/hiv-information/long-term-survivors-hiv

Health

Multimorbidity

- ART is effective at controlling HIV infection, but it does not spare older PLWH from experiencing other health conditions (i.e., comorbidities).
- Comorbidities may be diseases commonly experienced by people as they age, or they may be related to HIV infection and its treatments.
- The combination of HIV infection and normal changes to the immune system due to aging may place older PLWH at greater risk of developing comorbidities.
- The occurrence of multiple comorbid health conditions is known as **multimorbidity**.
- Being treated for multiple comorbid conditions can result in **polypharmacy**, or the use of multiple medications by one individual (Siegler & Brennan-Ing, 2017).
- Polypharmacy can result in several adverse outcomes including liver and kidney failure (Abe et al., 2017), as well as greater risk of falls and fractures (Dhalwani et al., 2017; Kim et al., 2018).



Increased Risk of Multimorbidity with HIV and Age

Figure 1. Distribution of the number of age-associated noncommunicable comorbidities stratified by age across both study groups. Abbreviations: AANCC, age-associated noncommunicable comorbidities; HIV, human immunodeficiency virus.

Schouten, J., Wit, F. W., Stolte, I. G., Kootstra, N. A., van der Valk, M., Geerlings, S. E., ... & Reiss, P. (2014). Cross-sectional comparison of the prevalence of age-associated comorbidities and their risk factors between HIV-infected and uninfected individuals: the AGEhIV cohort study. *Clinical Infectious Diseases, 59*(12), 1787-1797.

Behavioral Health

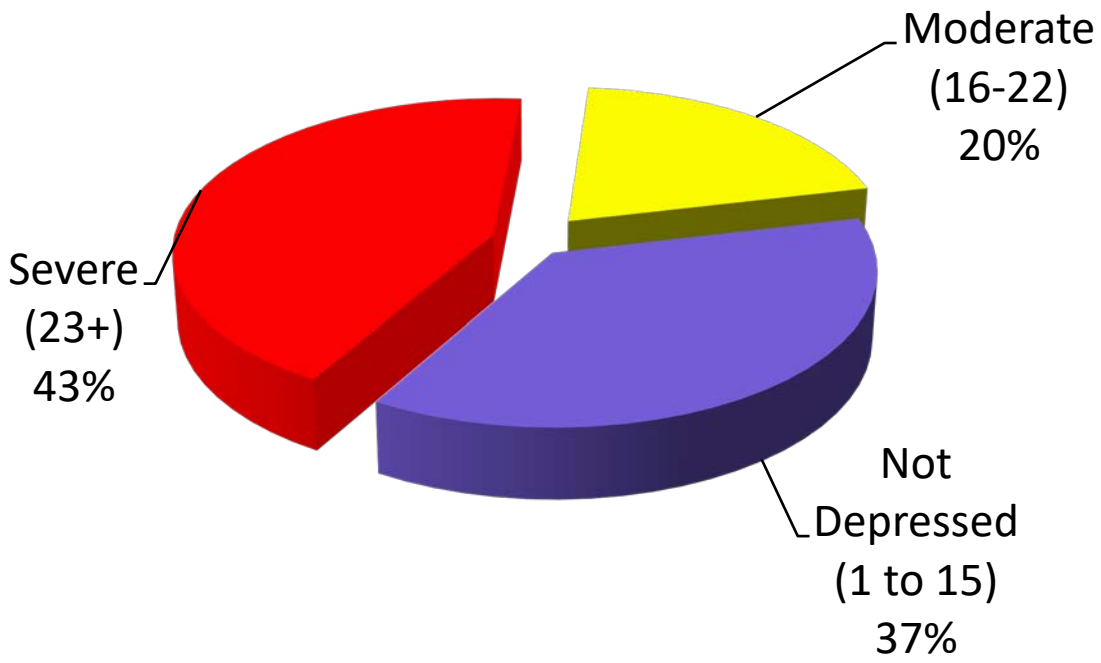
Depression

One of the most frequently self-reported comorbid conditions:

- **52%** of PLWH in NYC

Depression is often related to:

- Prior history of depression
- Comorbidity (*i.e.,* physical illness, psychiatric, substance use)
- Chronic stress
- History of trauma/abuse and PTSD
- HIV stigma, and concomitant loneliness and social Isolation



CES-D Depressive Symptom Scores

Applebaum, A., & Brennan, M. (2009). Mental health and depression. In M. Brennan, S. E. Karpiak, A. R., Shippy, & M. H. Cantor, (Eds). *Older Adults with HIV: An in-depth examination of an emerging population, pp.27-34*. New York: Nova Science Publishers.

Why Depression Among PLWH is Important

Can suppress immune responses (*e.g.*, Tiemeier, van Tuijl, Hofman, Kiliaan, & Breteler, 2002).

Associated with an increased inflammatory response (Kiecolt-Glaser & Glaser, 2002).

Contributes to neuropsychological impairment or exacerbates cognitive deterioration caused by normal aging in HIV-infected adults (Gibbie *et al.*, 2006).

Decreased functional ability.

Difficulty with adherence to ART and other treatments.

Depression: PLWH vs. Other Older Adults

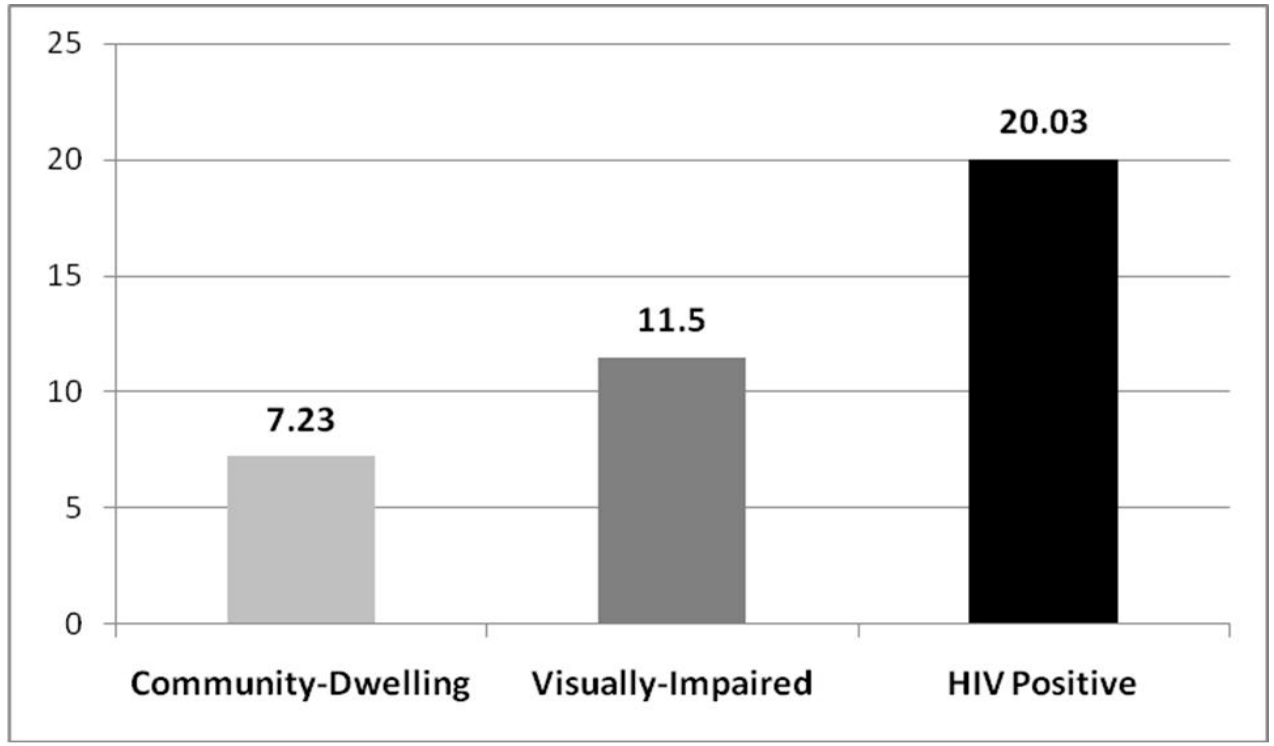


Figure 2 Comparison of Average CES-D Scores among Middle-age and Older Adults who are Community-dwelling, Visually-Impaired, or Living with HIV in ROAH. Data on Community-dwelling adults and visually impaired adults were obtained from Gump et al. (2005) and Horowitz et al. (2006), respectively.

Covariates of Severe Depression in Older PLWH

Covariate	AOR	Δ R^2
Female (1=yes)	1.06	
Gay/Bisexual/Lesbian	0.68	
Age	**0.96**	
White (1 = yes)	1.25	
Latino (1 = yes)	**1.06**	**.05**
MOS-HIV Physical Function	1.00	
MOS-HIV Social Function	1.00	
MOS-HIV Cognitive Function	**0.98**	
MOS-HIV Pain	0.99	
MOS-HIV Energy/Fatigue	**0.97**	**.29**
Berger Stigma Scale	**1.013**	
UCLA Loneliness Scale	**1.06**	**.08**

Grov, C., Golub, S. A., Parsons, J. T., Brennan, M., & Karpiak, S. E. (2010). Loneliness and HIV-related stigma explain depression among older HIV-positive adults. *AIDS Care, 22*(5), 630-639.

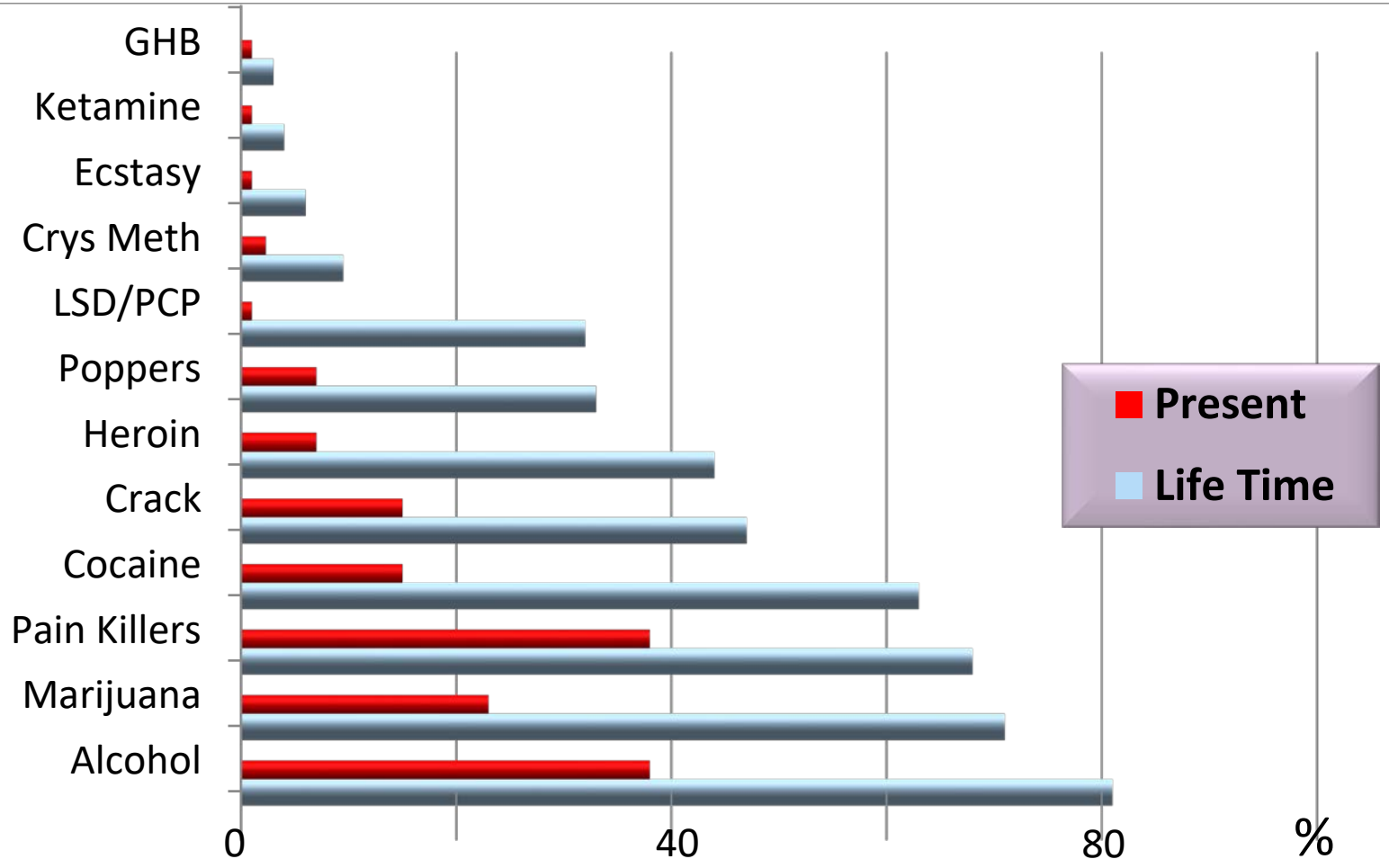
Substance Use Complicates HIV Care

Substance and alcohol use among persons living with HIV is associated with:

- Behavioral health issues (Pence *et al.)*
- ART non-adherence (Chesney, 2000; Ware *et al.,* 2005)
- Risk for HIV infection (Leigh & Stall, 1993; Semaan *et al.,* 2002)

Alcohol and substance use can **DECREASE** the efficacy of antiretroviral therapy (Michel, Carrieri, Fugon *et al.,* 2010)

Alcohol and Substance Use: Older PLWH in NYC



Applebaum, A., & Brennan, M. (2009). Substance and alcohol use. In M. Brennan, S. E. Karpiak, A. R., Shippy, & M. H. Cantor, (Eds). *Older Adults with HIV: An in-depth examination of an emerging population, pp.35-42*. New York: Nova Science Publishers.

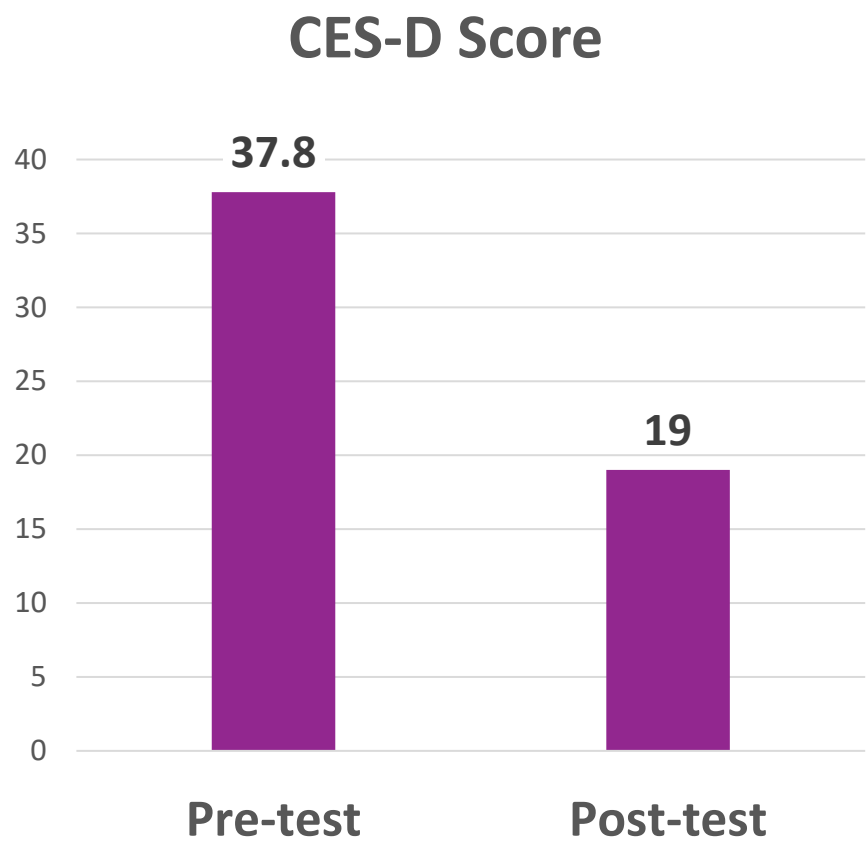
Non-medical Approaches

Behavioral health problems may be mitigated by addressing underlying issues such as poor social support.

We adapted an intervention (MacArther Project RESPECT) for 26 older PLWH:

- Intervention consisted of weekly 5-to-10-minute support call from a Care Manger.
- **NOT** Telehealth

After 6 months, significant decrease in depressive symptoms and self-reported reduced substance/alcohol use.



Brennan-Ing, M., Seidel, L, Geddes, L, Freeman, R., Figueroa, E., Havlik, R., & Karpiak, S. E. (2017). Adapting a telephone support intervention to address depression in older adults with HIV. *Journal of HIV/AIDS & Social Services, 16*(4), 335-350. DOI: 10.1080/15381501.2017.1318103.

Behavioral Health Summary

The high prevalence of depression and substance use among older PLWH suggests that these conditions are poorly managed in clinical settings.

- Older PLWH average depressive symptom scores are nearly double those of older people who are visually impaired (a population characterized by high rates of depression).

Both depression and substance use interfere with adherence to ART.

- Failure to address these issues will interfere with U.S. *Ending the HIV Epidemic (EHE)* goals of increasing rates of viral suppression.
- Substance and alcohol use decrease the effectiveness of ART.

Non-medical approaches, like addressing poor social support, are effective in reducing behavioral health problems in older PLWH.

Social Support and Isolation

Why Social Supports among PLWH are Important

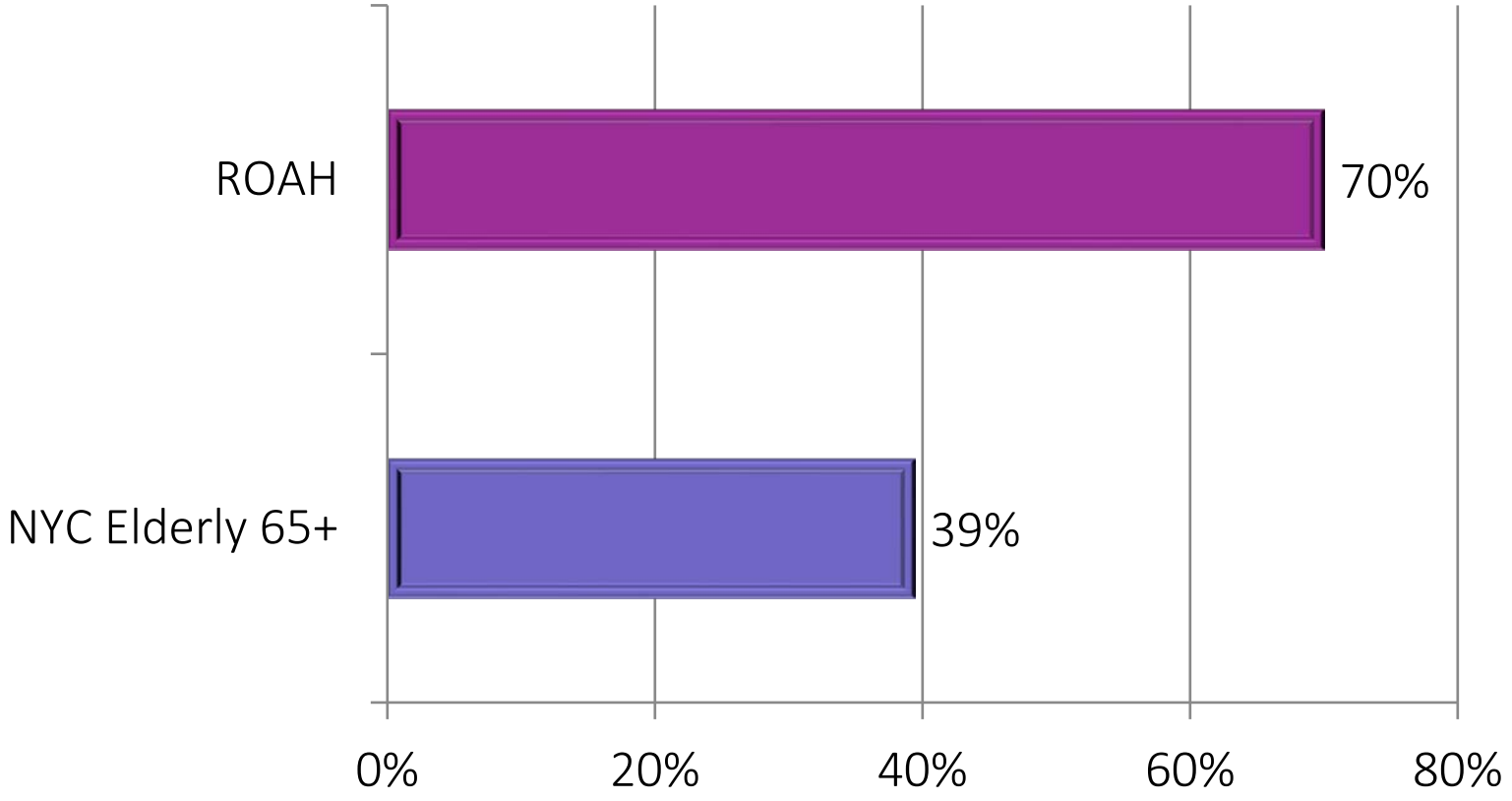
Older PLWH have high levels of comorbid physical and mental health conditions that require care and assistance now and in the future.

Government and community-based services are being stretched due to:

- The aging of the population in general
- Decreased funding and program cutbacks due to budget shortfalls
- Recalibrating health and social services due to the COVID-19 pandemic (remote vs. in-person)

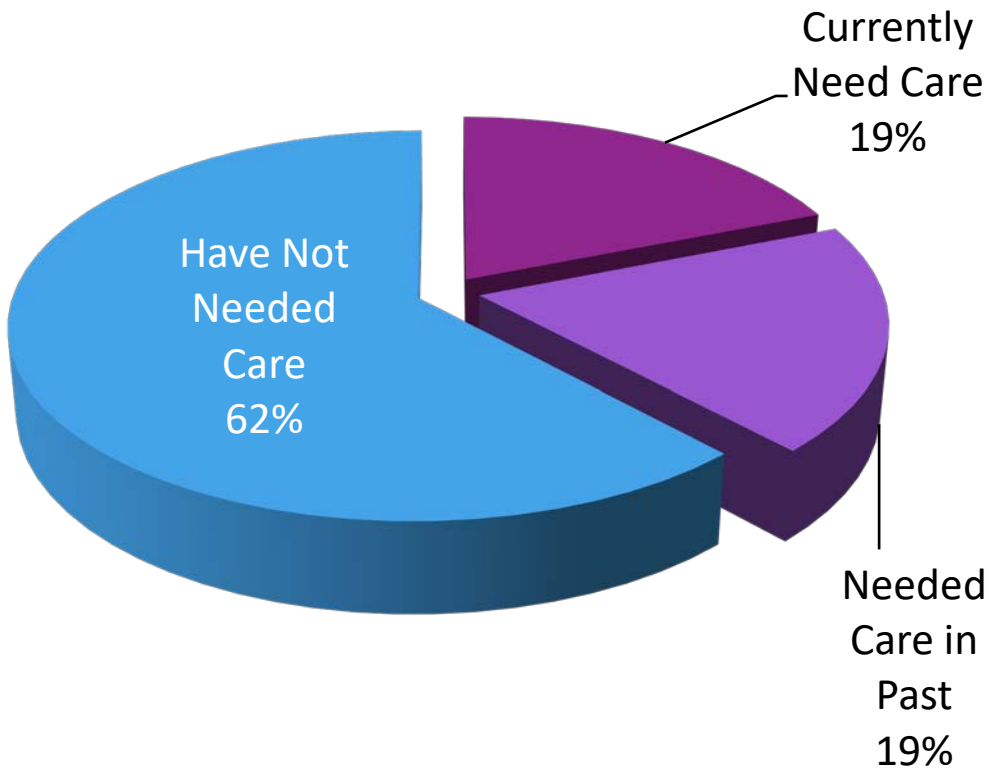
AIDS Service Organizations (ASOs) lack experience in serving an older population whose needs may differ from those of younger PLWH.

Living Alone: Older PLWH vs. NYC Adults 65+



Need for Caregiving: PLWH 50+

- Average Age = 55.5 Years
- Average Number Comorbid Conditions = 3.4
- 46% reported difficulty with at least one Instrumental ADL
- 22% reported difficulty with at least one Personal ADL



Brennan, M., Karpiak, S. E., London, A. S., & Seidel, L., (2010). ***A Needs Assessment of Older GMHC Clients Living with HIV.*** http://www.acria.org/files/GMHCFinal.pdf

Typology of Social Networks of Older PLWH

In order to better understand the social networks of older PLWH, we conducted a cluster analysis on a variety of social network and demographic characteristics:

- degree of face-to-face and telephone contact with different social network members (i.e., functionality)
- living arrangements
- religious participation

The final analysis identified three groups that were significantly different (Chi-square tests with Bonferroni adjustment for multiple comparisons)

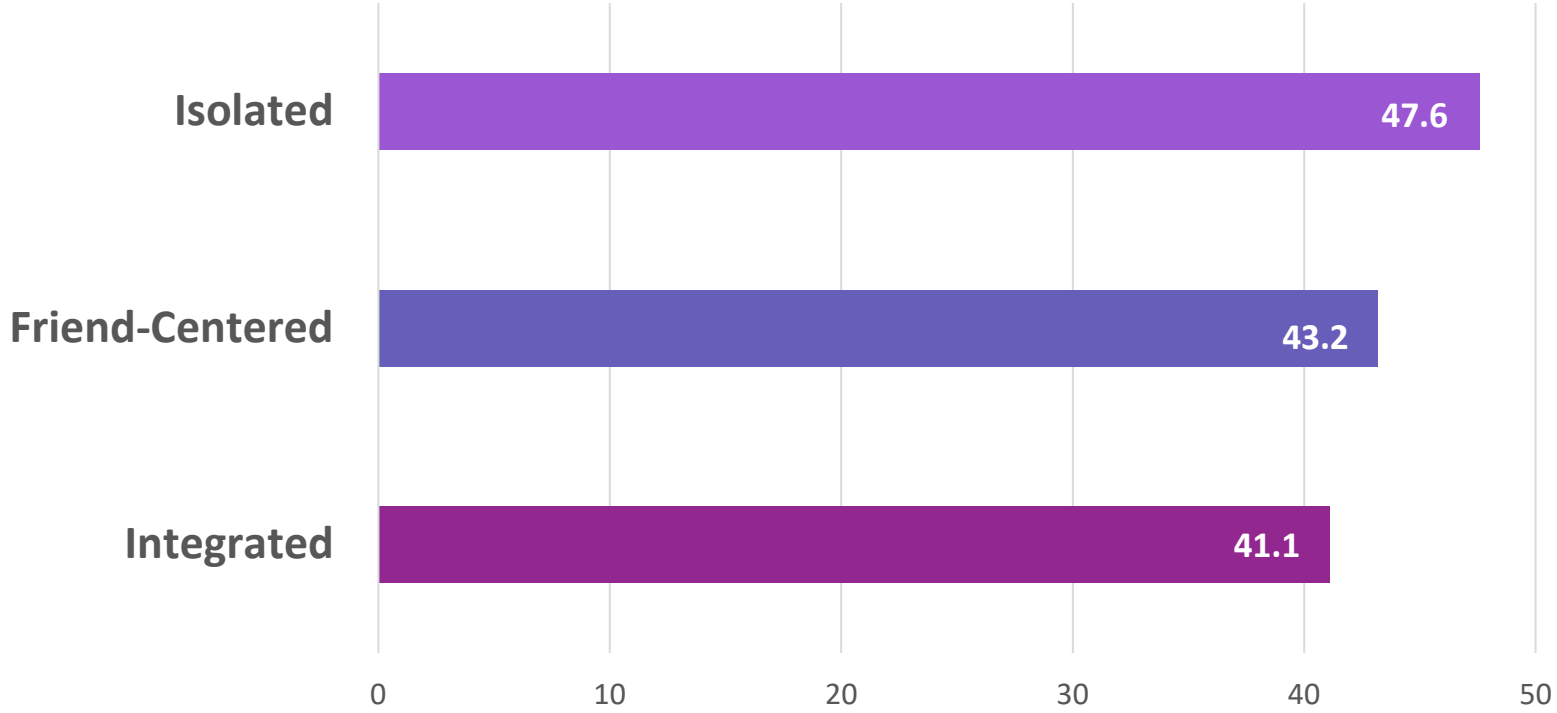
Social Network Types

Isolated (32%), the most socially isolated, had intermediate contact with their children, little contact with other family members or friends, and little interaction with religious groups

Friend-Centered (35%) had contact with friends but not with children, family, or religious groups.

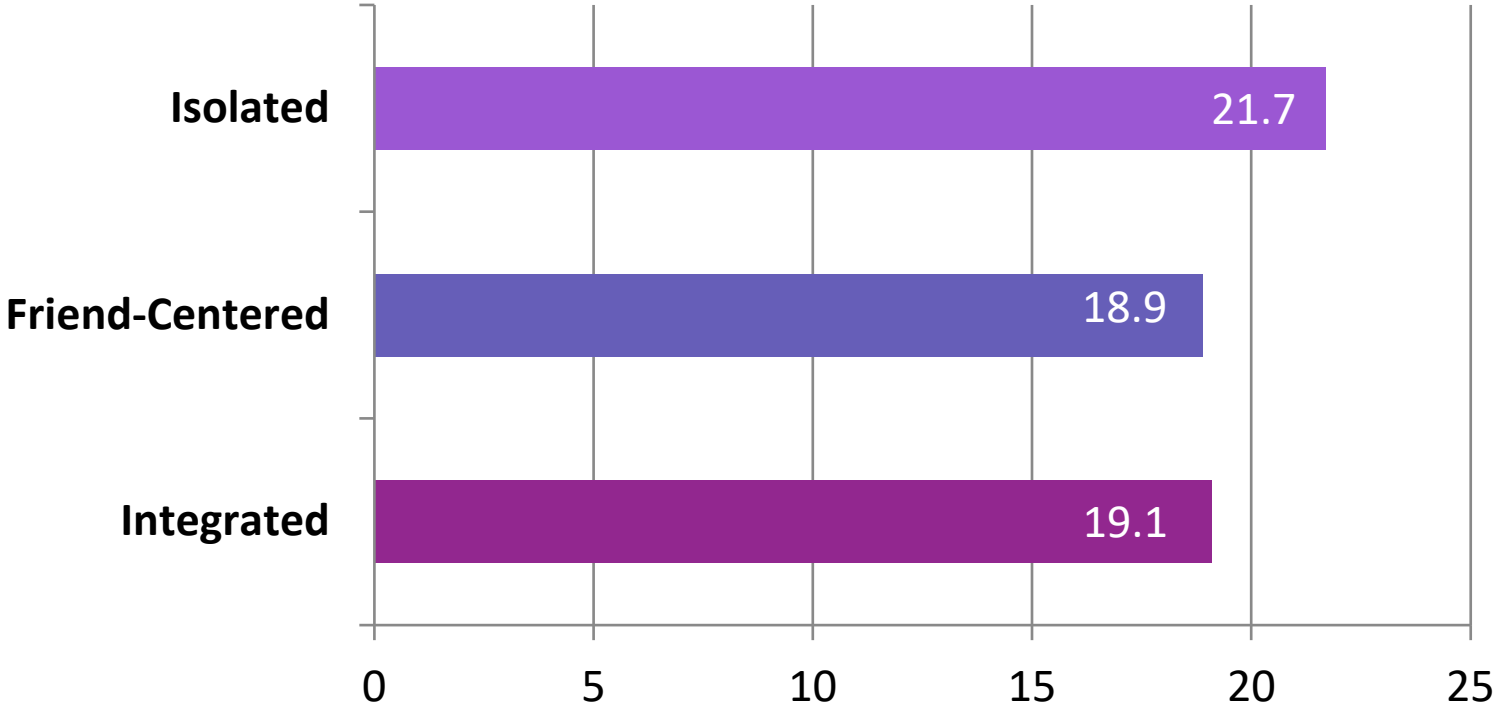
Integrated (33%) had the broadest spectrum of relationships, including children, family, friends, and the highest levels of religious participation

UCLA Loneliness Scale by Network Type



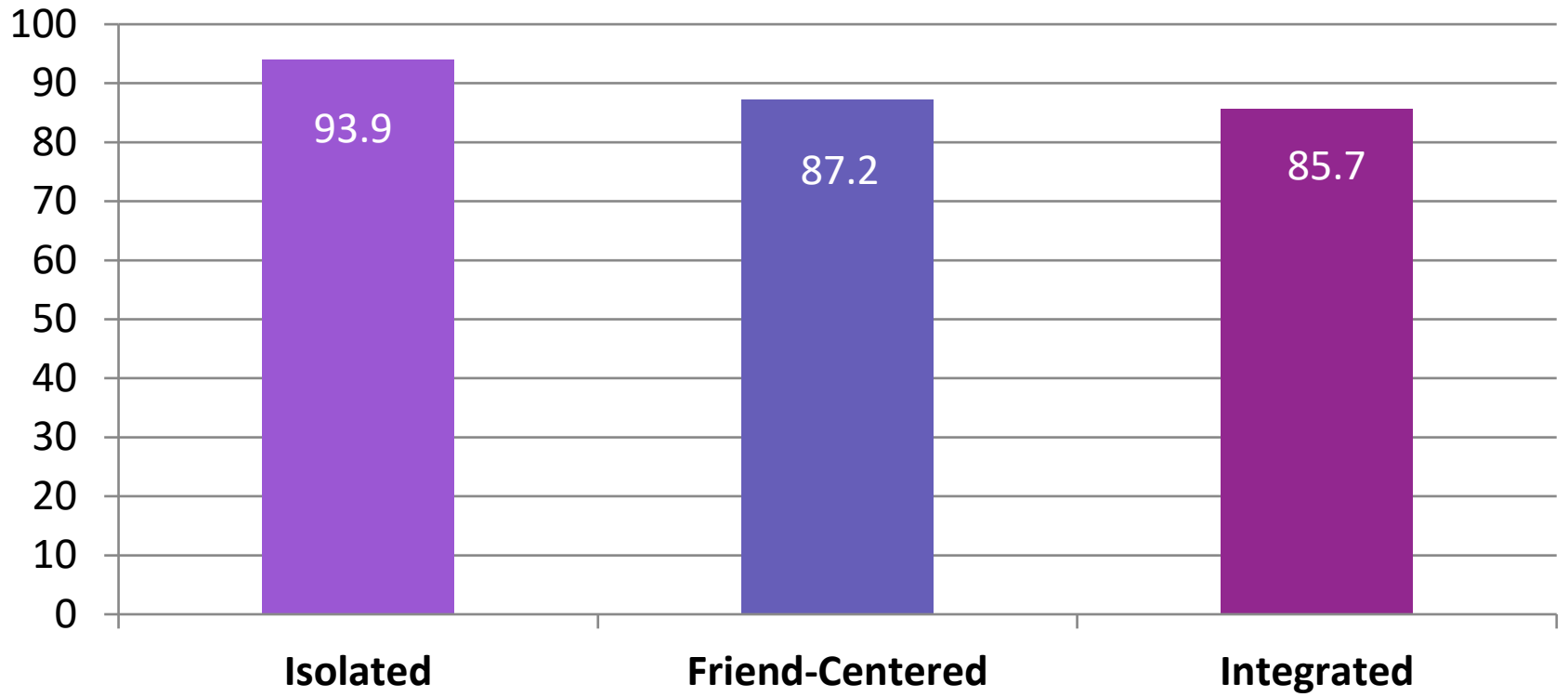
UCLA Loneliness Scale; Russel, 1996

Depression by Network Type



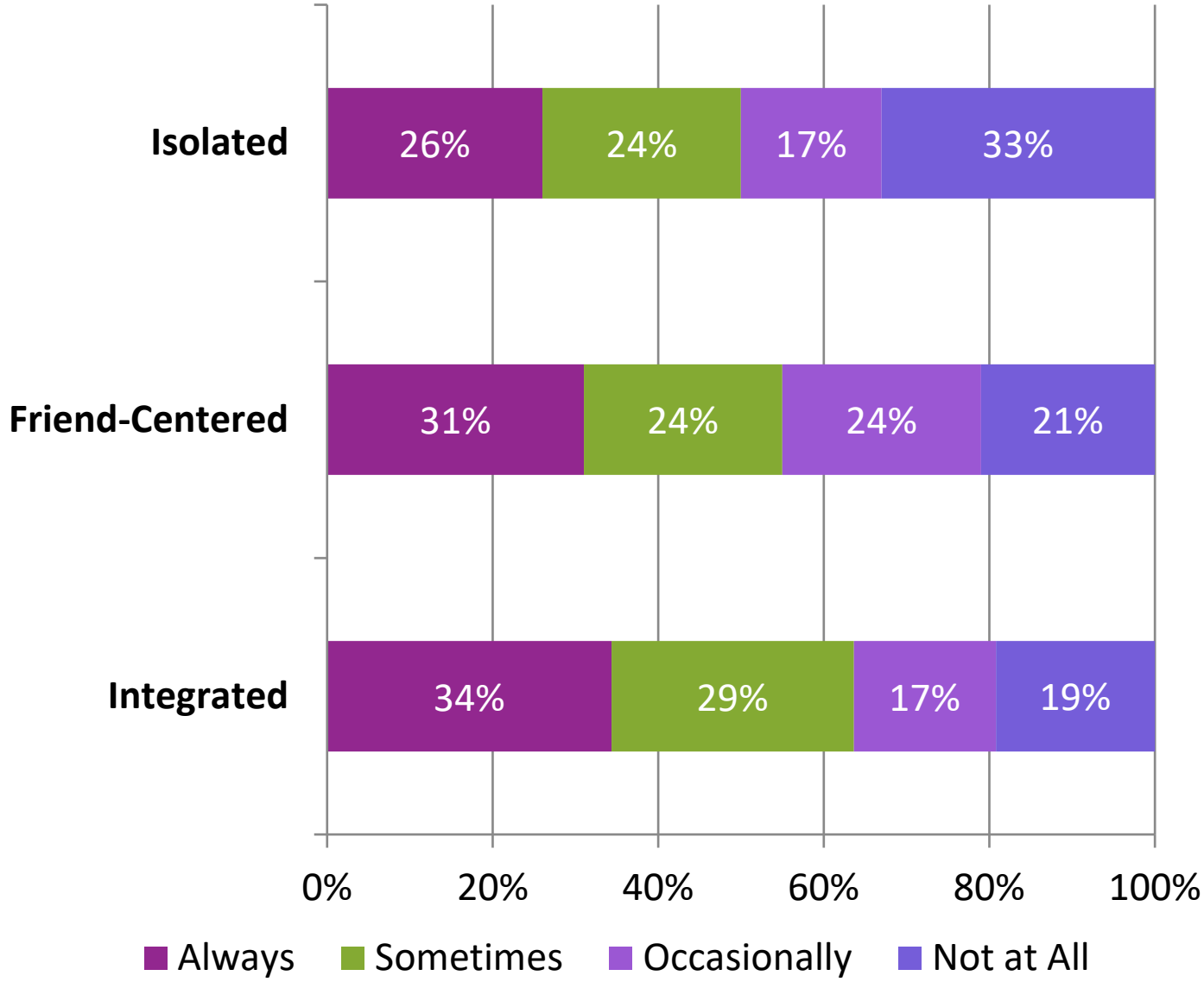
Center for Epidemiological Studies Depression Scale [CES-D]; Radloff, 1977

HIV Stigma by Network Type

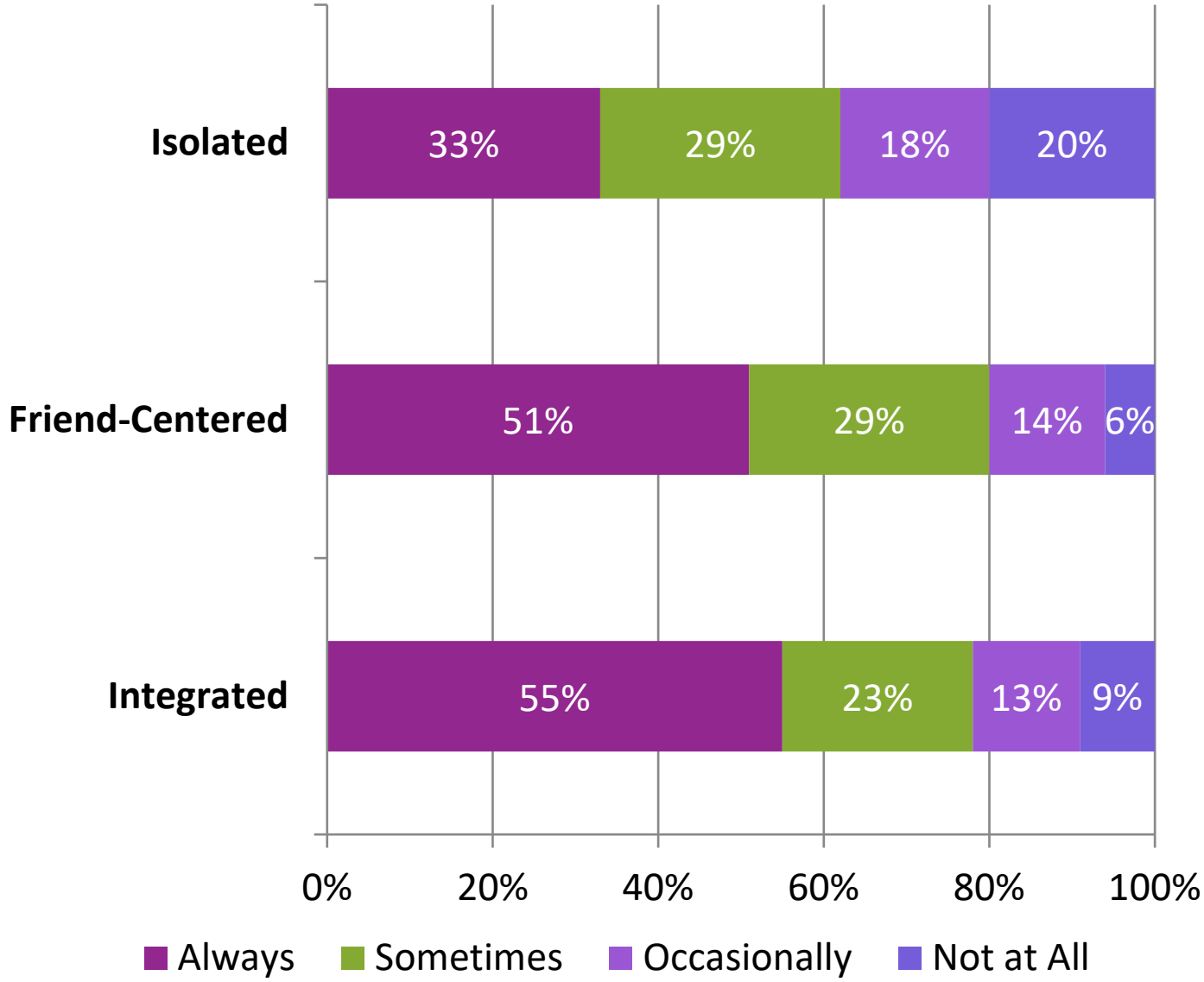


HIV Stigma Scale; Berger, Ferrans, & Lashley, 2001

Instrumental Help Availability



Emotional Support Availability



Summary

Those with *Friend-Centered* network types received most of their assistance from friends, but still less than the *Integrated* group who had reported a greater variety of functional family members.

However, for those with *Friend-Centered* networks, the amount of assistance received from friends does not compensate for the lack of family support.

The *Isolated* reported significantly lower levels of assistance, lower perceptions of support availability and adequacy, greater stigma and psychological distress, and lower well-being compared to their peers.

Conclusions

While friends dominate many social networks in this population, a more nuanced interpretation is needed; many have no friends and a substantial proportion receive significant family support.

Those with *Isolated* network types will likely need to access a high volume of community-based services as they age as they lack informal support resources.

Thank You!

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