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# Barriers Reaching Carriers

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# Balancing Needs to Improve Outcomes

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## Patient Needs

- Focus on Strengths
- Emphasize Belonging

**TENSION**

## Provider Needs

- Engage with the evidence without blaming the victim



**Compassion, Empathy, Understanding**

# Why 45,000 new infections/year?

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- We have the pharmacological agents to fully suppress the virus
  - SE burden, pill burden have significantly decreased
- We have the barrier protection necessary to minimize transmission of the virus
- For a majority of our patients, HIV is no longer primarily a bio-medical challenge

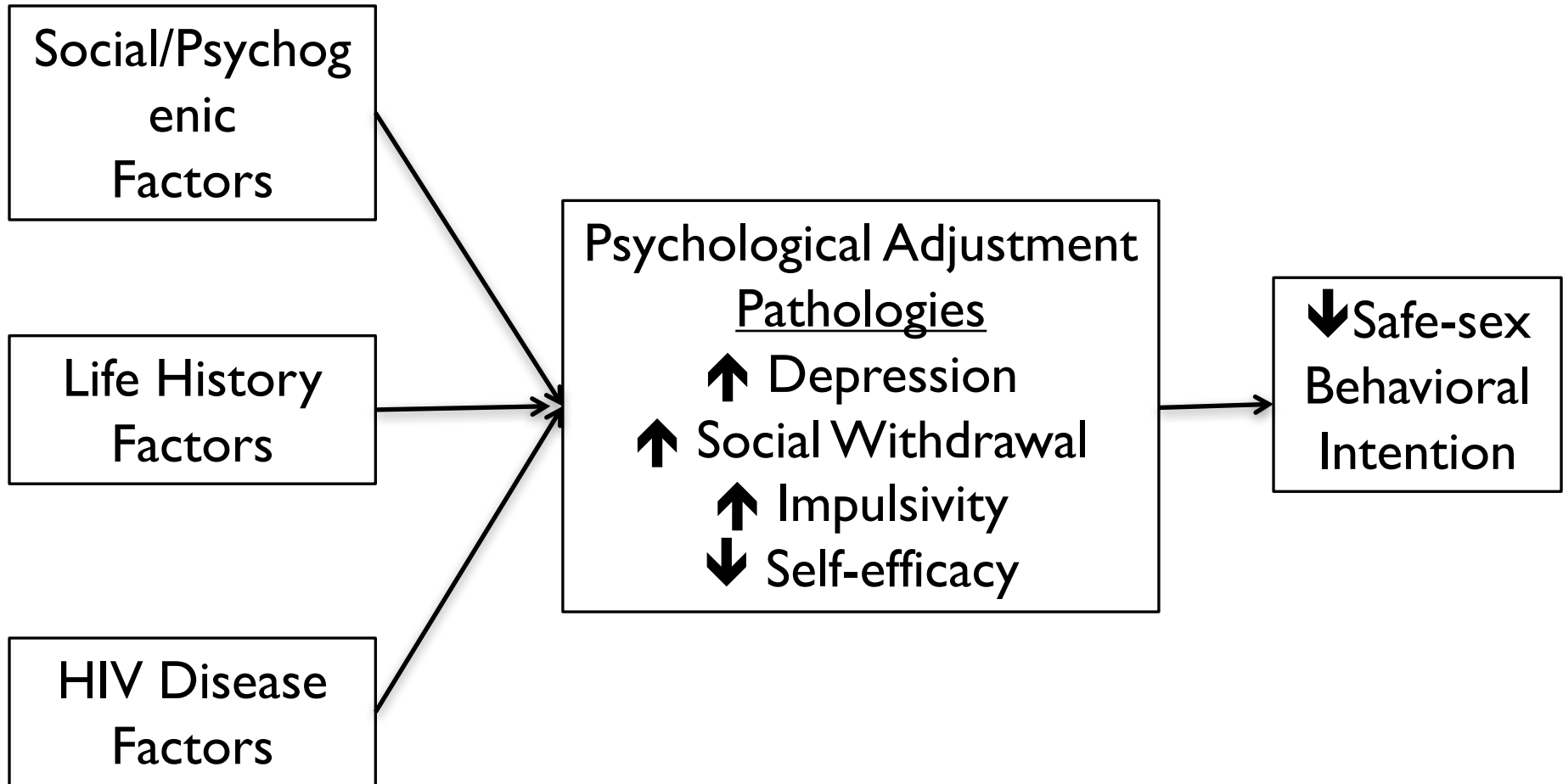
# Complicating Factors/Possible Clues

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- Relative to the general population,
  - Increased rates of **depression**,
  - Increased levels of **impulsivity**,
  - **Significantly higher** prevalence of **childhood sexual abuse**,
  - **Significantly higher** prevalence of **shame** and **stigma**,
  - Lower levels of **self-efficacy**
- **All of which are correlated with increased risk of risky sexual behaviors**

# Organizing Framework

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# Psychological Adjustment in Southeastern US HIV Clinic (N=239)

**Hypothesis:** The Psychological Adjustment Screener (PAS) will be a clinically efficient and useful screening tool in a busy Southeastern USA HIV clinic.

**Findings:** Statistically significant inverse relationships between General Self-efficacy and 8 of the 10 domains of the PAS. Significant burden of concerns relative to community and clinical samples upon which the instrument is based.

PAS Element	Spearman rho correlation	p-value	% of sample at mod/marked risk for diagnosis
Alienation	-.47	< .001	38%
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Acting Out	-.11	.080	62%
Alcohol Problems	-.03	.636	25%
Total PAS Score	-.47	< .001	

# Pervasive Structural Violence

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- **Structural Violence:**
  - institutional barriers that impair the equal pursuit of human health within and across societies (Farmer).
  - Racial, sexual, socioeconomic biases that are embedded in the common institutions of our daily lives.

# Homeostasis

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**HOMEOSTASIS:**  
**Stable internal**  
**environment of an**  
**organism**



**Organisms are identified**  
**as healthy whenever they**  
**have stable vital signs**



# Allostasis



**ALLOSTASIS:**  
**Stability of organism in a  
changing environment**



**How does the  
environment affect the  
health of the individual?**

# Allostatic Load

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**Allostatic Load: Cost to an organism over time, in terms of wear and tear, of maintaining allostasis**



**Toxic Environment -> toxic responses as individuals seek to cope with their surroundings**

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# Social/Psychogenic Factors

# Social Determinants of Health

## Uncontrollable Stress

The Social Gradient  
Chronic Stress  
Social Exclusion  
Work Stress  
Unemployment  
Social Support

## Early Life Health

Long-term impact  
of LBW/ELBW

## Addiction

Alcohol  
Tobacco  
Illicits

## Food

Lack of access to  
healthy diet

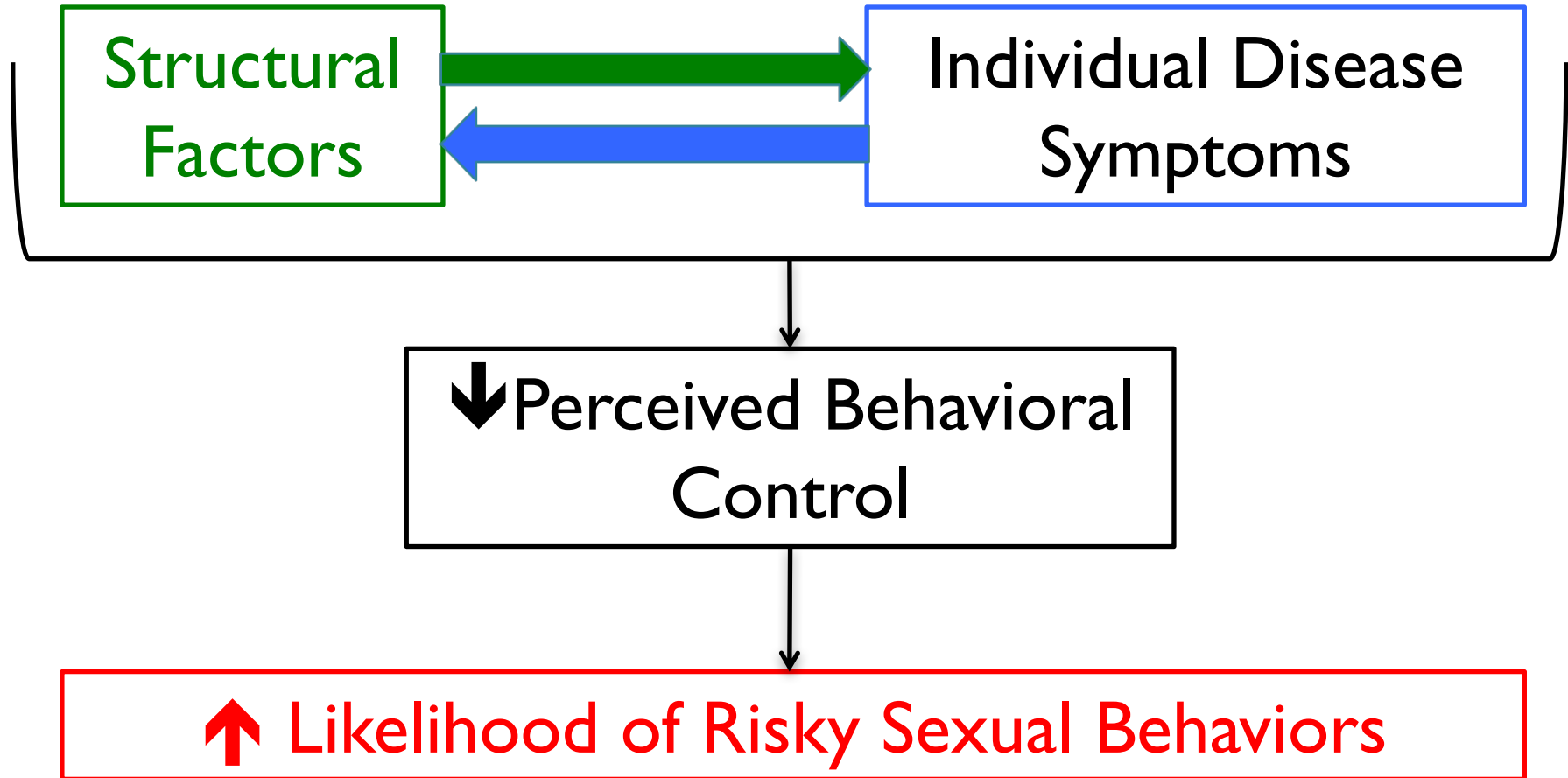
## Transportation

Focus on walking,  
cycling and better  
public transportation

**Human social organization is the result of human choices, and those choices have direct impact on every member of a society, especially the least powerful members.**

# Impact of SDH on HIV and HIV Care

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# The Effects of Housing Status on Health-Related Outcomes in People living with HIV: A Systematic Review of the Literature

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## Adherence

Unstable housing as a predictor of poor adherence:

OR: 2.76, 95% CI 1.30 – 5.85

Poor housing as a predictor of poor adherence:

OR: 1.88, 95% CI 1.15 – 3.08

Residence in long-term vs short term housing/shelter linked to better ART adherence:

75% vs 42%,  $p = 0.03$

Increased likelihood of poor adherence associated with history of homelessness:

OR 1.38, 95% CI 1.02 – 1.85,  $p < .035$

## Health Outcomes

Homeless > 1-yr at baseline vs never homeless associated with HCV co-infection:

62% vs 38%,  $p < 0.020$

Stable housing link to lower risk of HCV co-infection:

OR: 0.16, 95% CI 0.04 – 0.59

## Risk Behaviors

Likelihood of hard drug use in homeless vs stably housed groups:

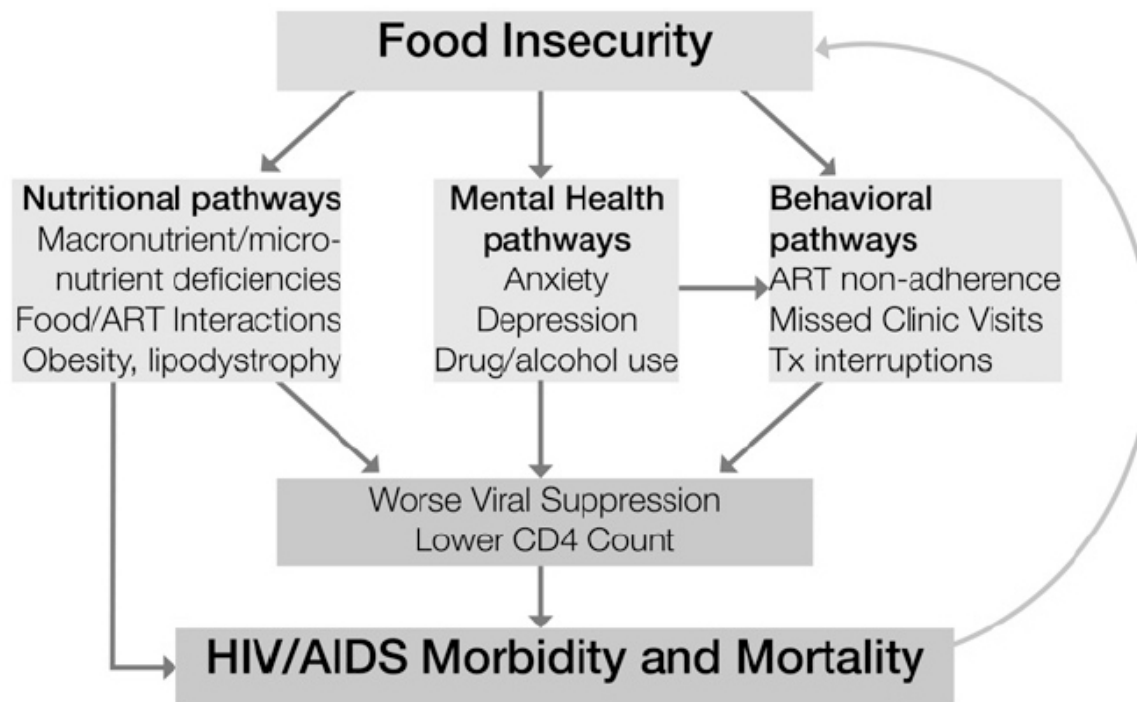
OR 3.58, 95% CI 2.31 – 5.53

Likelihood of sex exchange behaviors in participants with worsening housing situation vs stable housed:

OR 5.11, 95% CI 1.05 – 24.8

Leaver, CA, Bargh, G, Dunn, JR, Hwang, SW (2007). AIDS and Behavior, 11: S85 – S100.

# Conceptual framework for understanding the bidirectional links between food insecurity and HIV/AIDS<sup>1-4</sup>



**FIGURE 3.** Food insecurity and HIV/AIDS morbidity and mortality. ART, antiretroviral therapy; Tx, treatment.

Weiser, SD, Young, SL, Cohen, CR, Kushel, MB, Tsai, AC, Tien, PC, et. al. *Am J Clin Nutr* 2011; 94(suppl):1729S-39S.

# Food Insecurity is Associated with Incomplete HIV RNA Suppression Among Homeless and Marginally Housed HIV-infected Individuals in San Francisco

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Characteristic	All Participants N=104	Food Secure Category 1-3 N=78 (75%)	Severely Food Insecure N=26 (25%)
Pill Adherence > 80%	58 (56%)	48 (62%)*	10 (38%)*
VL < 50 copies/ml	58 (56%)	49 (63%)**	9 (35%)**
History of Drug use, last 30 days	35 (34%)	21 (27%)**	14 (54%)**
BDI Score (mean, SD)	11.7 (10.1)	10.1 (9.2)**	16.6 (11.3)**

Note: *p*-values compare severely food insecure vs all others per characteristic. \* *p*≤.05, \*\* *p*≤.01.

Weiser, SD, Frongillo, EA, Ragland, K, Hogg, RS, Riley, ED, Bangsberg, DR (2008). Journal of General Internal Medicine. 24(1), 14-20.



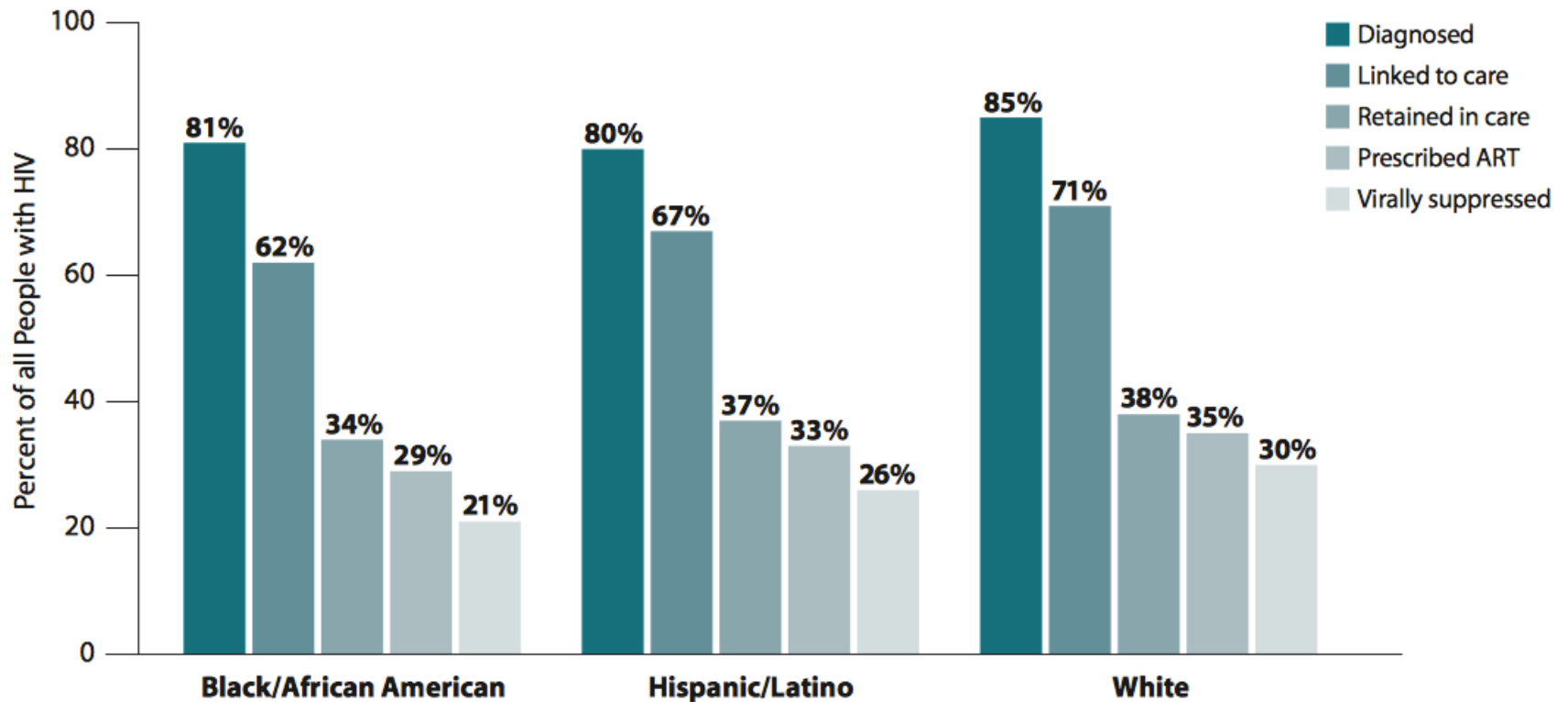
# Sexual Behavior Patterns

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- Condom use patterns learned from listening to patients in clinic.
  - Condom use as an expression of intimacy
- Community behavioral norms, technology, and medical evidence
  - Serosorting and seropositioning

# Race/ethnicity and Viral Suppression

**BY RACE/ETHNICITY: African Americans are least likely to be in ongoing care or to have their virus under control.**

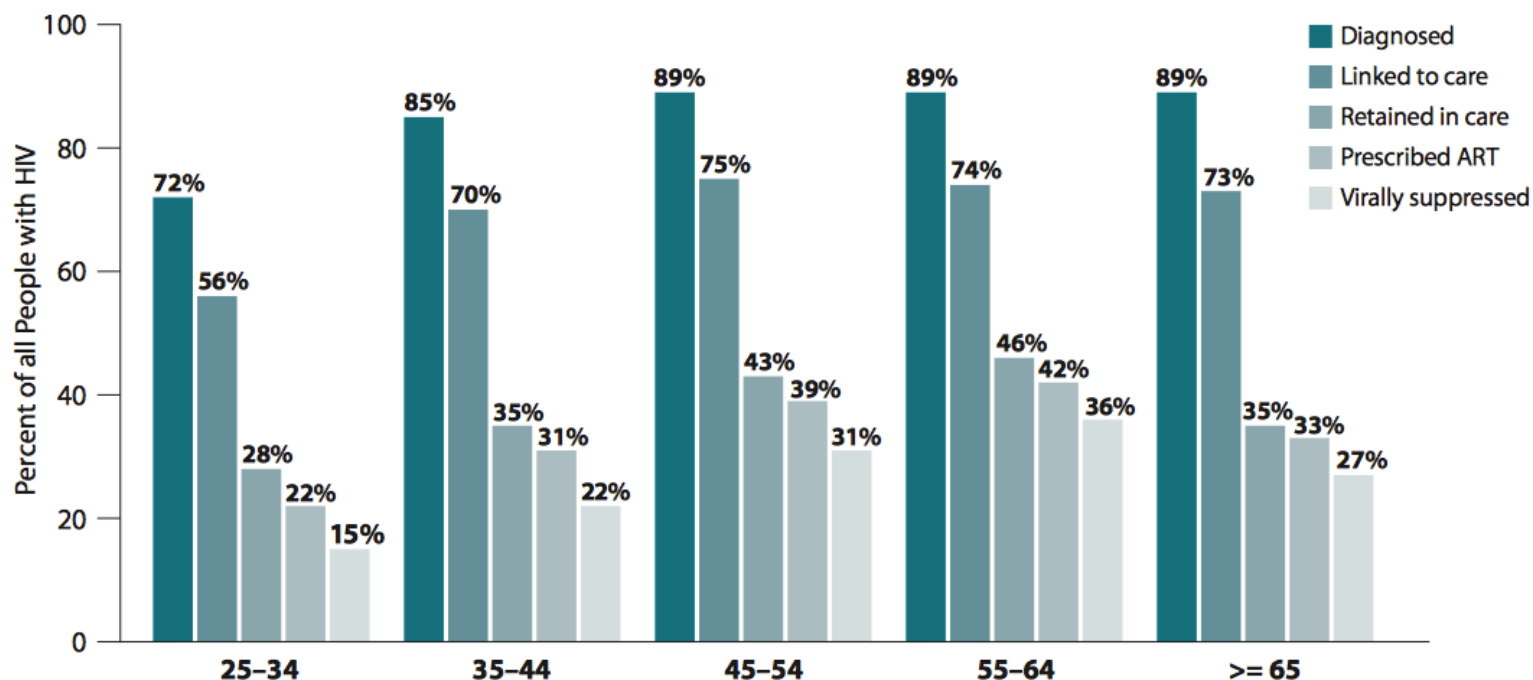


U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

Southeast AIDS Education and Training Center

# Age and Viral Suppression

**BY AGE: Younger Americans are least likely to be retained in care or have their virus in check; HIV care and viral suppression improve with age, except among those aged 65 and older.**

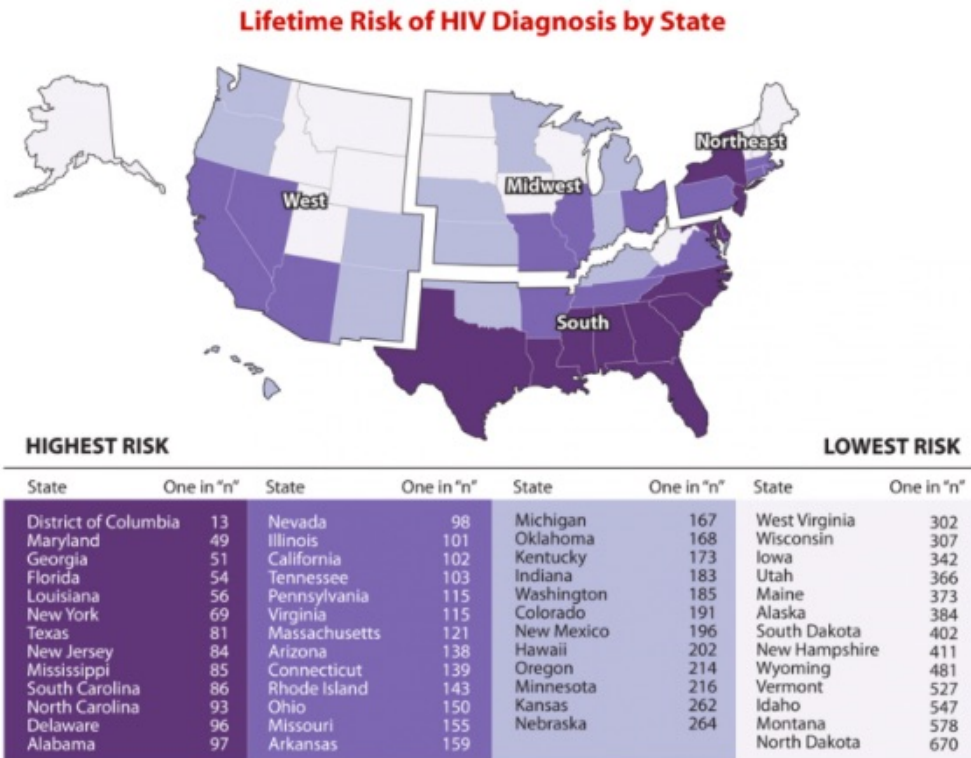


Note: Although national data were not available to provide estimates of viral suppression for those under the age of 25, the data show that 13-24 year-olds are substantially less likely to have been diagnosed with HIV than other age groups (only 41 percent versus more than 70% for all other age groups).



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

# Lifetime Risk of HIV Diagnosis in the US



Source: Centers for Disease Control and Prevention

## Lifetime Risk of HIV Diagnosis:

All MSM: 1 in 6

Heterosexual Women: 1 in 241

Heterosexual Men: 1 in 473

African-American MSM: 1 in 2

Hispanic MSM: 1 in 4

White MSM: 1 in 11

# Sexual Networks

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- What percentage of sexual encounters occur with no preferences save for gender? Is intercourse random or selective?

Population	Lifetime risk of HIV
African-American men	1 in 20
African-American women	1 in 48
Hispanic men	1 in 48
Hispanic women	1 in 227
White men	1 in 132
White women	1 in 880

# The Power of Sexual Networks

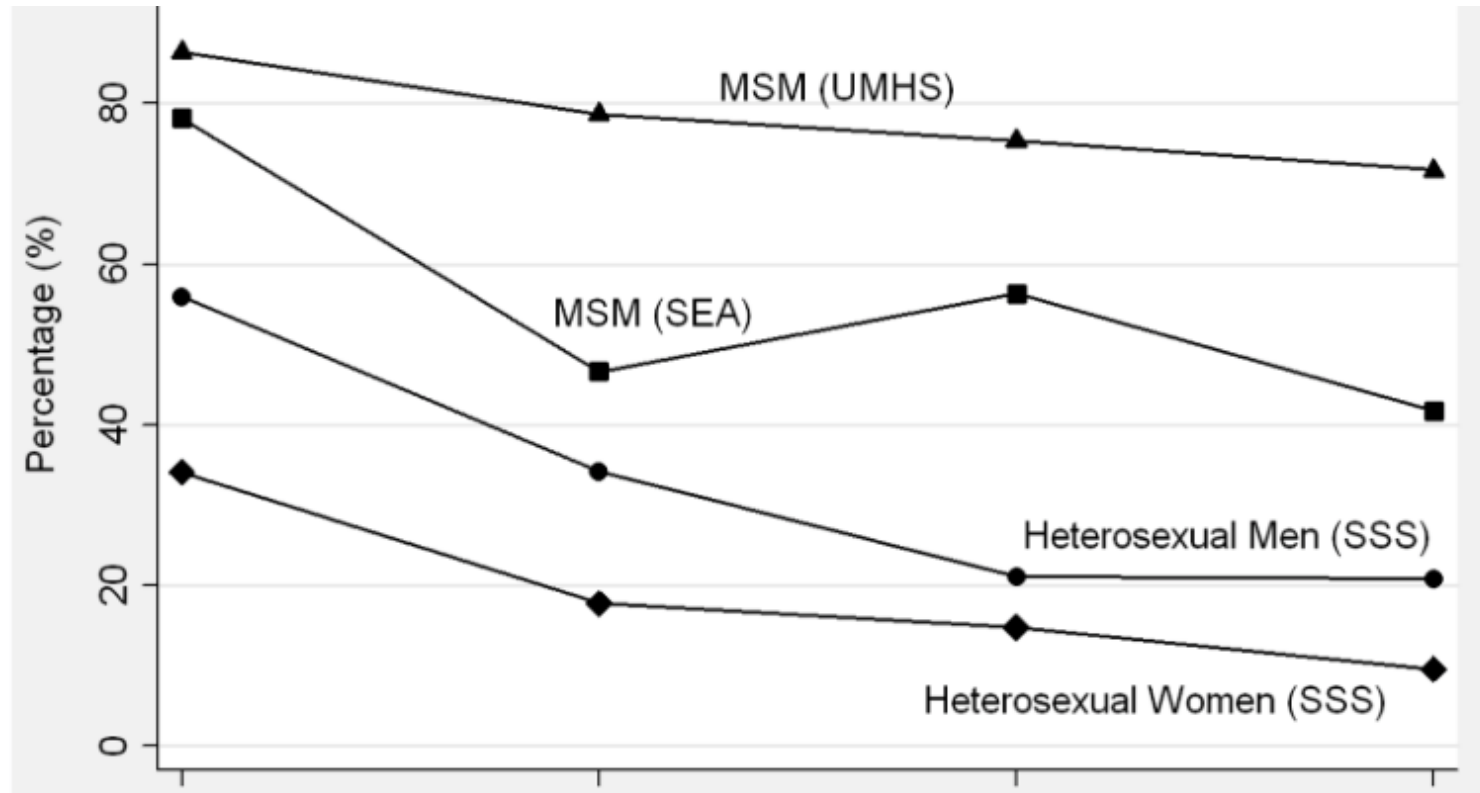
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- Laumann study (1999)
- “Peripheral” Blacks (one partner last 12 mons) are five times more likely to choose “Core” Black ( $\geq 4$  partners in the past year) partners than “peripheral” Whites are to choose “core” whites
- Segregation by skin color limits pool of partners – 30% increased likelihood of STD based on this factor

Laumann, EO, Youm, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. *Sexually Transmitted Diseases*, May, 26(5), 250-261.

# Sexual Behavior Patterns

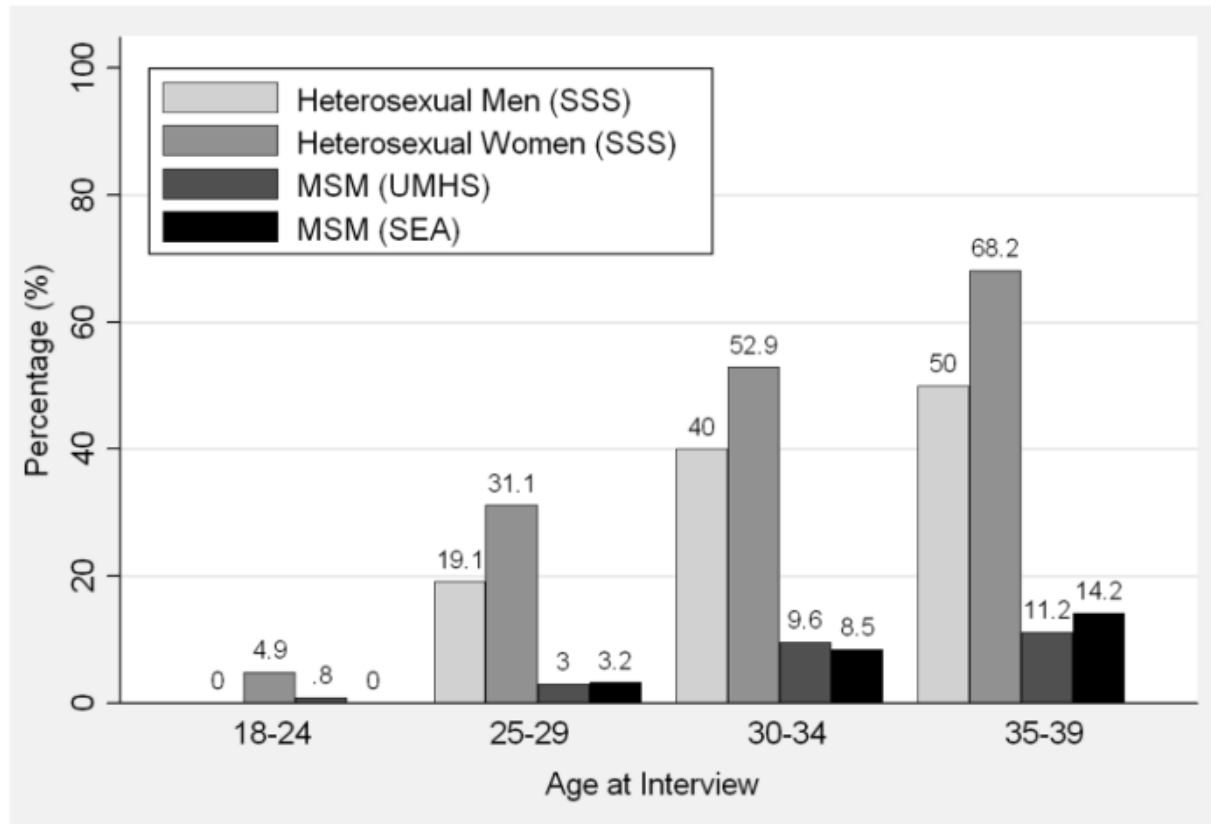
Proportion of four samples in a new relationship in the past 12 months



Laumann, EO, Youm, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. *Sexually Transmitted Diseases*, May, 26(5), 250-261.

# Sexual Behavior Patterns

Proportion of four samples whose current relationship began  $\geq 5$  years ago.



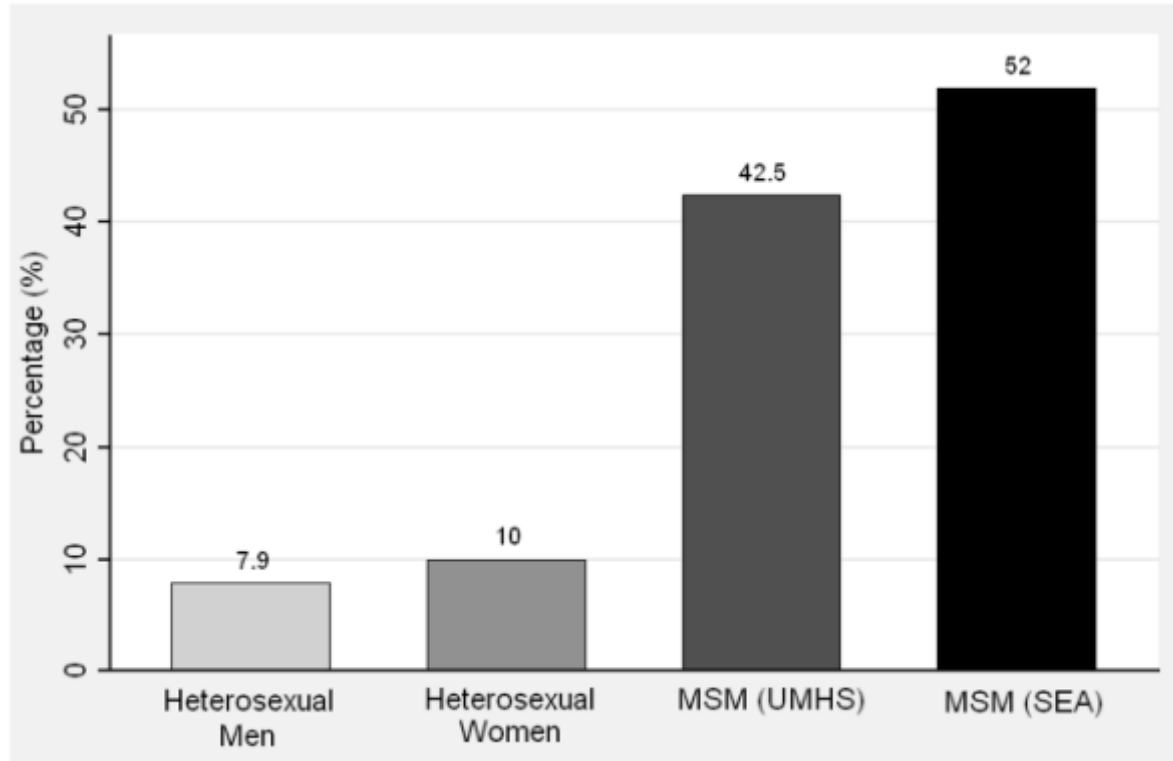
Laumann, EO, Youm, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. *Sexually Transmitted Diseases*, May, 26(5), 250-261.



# Sexual Behavior Patterns

Proportion of four samples whose most recent partner is  $\leq$  5 years of respondent.

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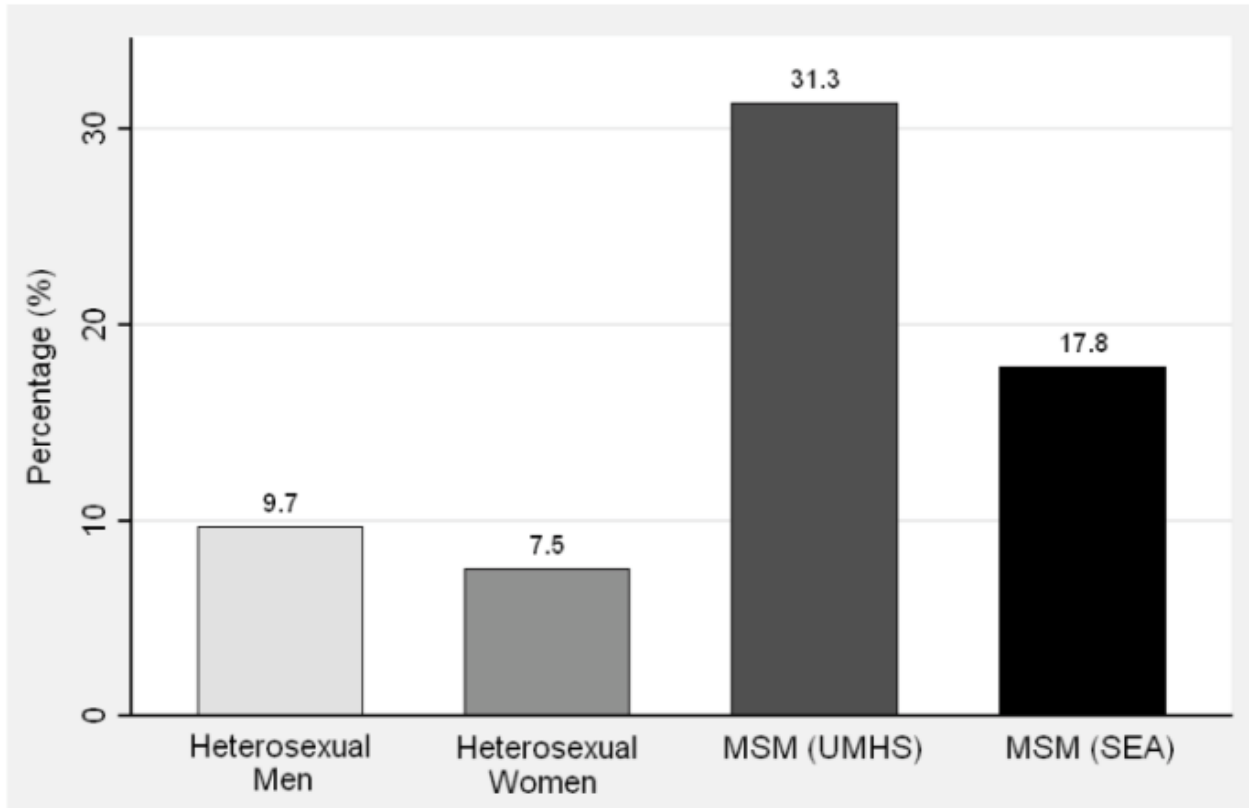


Laumann, EO, Youm, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. *Sexually Transmitted Diseases*, May, 26(5), 250-261.

# Sexual Behavior Patterns

Proportion of four samples in a concurrent relationships.

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Laumann, EO, Youm, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. *Sexually Transmitted Diseases*, May, 26(5), 250-261.

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# Life History Factors

# Stigmatization and Shame

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- Stigmatization: Social construction, based on power structures, resistant to change (Persons, et al, 2010)
  - Tightly linked to structural violence
- Shame: Internalized, painful, response to self-perceived social miscues, may be amenable to change (Persons, 2010)

Persons, E, Kershaw, T, Sikkema, KJ, Hansen, NB (2010). Impact of Shame on HRQoL Among HIV-Positive Adults with a History of CSA. AIDS Patient Care and STDS, 24(9).

# Childhood Sexual Abuse in Adults Living with HIV/AIDS

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- CHASE Study (2001-02) N = 611
  - 8 clinics, 3 MSAs, 5 Deep Southern states
  - ~ 25% sexually abused by 13 YO
  - 30% men and 38% women (+) lifetime sexual abuse
  - > 50% reported sexual or severe physical abuse
- Demographics consistently failed to achieve statistical significance.

Whetten, K, Leserman, J, Lowe, K, Stangl, D, Thielman, N, Swartz, M, et. al. (2006). Prevalence of Childhood Sexual Abuse and Physical Trauma in an HIV-Positive Sample from the Deep South. *American Journal of Public Health*, 96(6), 1028-1030.

# Childhood Sexual Abuse in Adults Living with HIV/AIDS

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- Kalichman Study (2000-2001) N = 357
  - 45% reported at least one sexual assault since 15 YO
  - 68% of women, 35% of men reported sexual assault in their lifetime.
  - Among the abused, mean number of events was 9.7 (SD = 2.7)
  - 80% abused more than one time.

Kalichman, SC, Sikkema, KJ, DiFonzo, K, Luke, W, Austin, J. (2002). Emotional Adjustment in Survivors of Sexual Assault Living with HIV/AIDS. *Journal of Traumatic Stress, 15*(4), 289-296.

# CSA Screening: Guidelines and Results

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## Screening for Childhood Trauma in Adult Primary Care Patients: A Cross-Sectional Survey (N=313)

- 79% believe that rate of CSA in women is  $> 10\%$ , usually/always screen 33% of the time
- 41% believe that rate of CSA in men is  $> 10\%$ , usually/always screen 32% of the time

Weinreb, L, MD, Savageau, JA, MPH, Candib, L, MD, Reed, GW, PhD, Fletches, KE, PhD, Hargraves, JL, PhD. (2010). *The Primary Care Companion to the Journal of Clinical Psychiatry*, 12(6), 1-23.

# Factors Associated with Adult Screening for CSA in Primary Care

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- Knowledge of Prevalence (correct vs incorrect):
  - Usually/always screen 2.297 (0.993 – 5.312)
- Confidence in Screening (mod/very vs not/somewhat)
  - Usually/ always screen 2.548 (1.385 – 4.688)
- Perceived Role to Screen (mod/great vs not/somewhat)
  - Usually/always screen 11.800 (2.701 – 51.555)

Weinreb, L, MD, Savageau, JA, MPH, Candib, L, MD, Reed, GW, PhD, Fletches, KE, PhD, Hargraves, JL, PhD. (2010). *The Primary Care Companion to the Journal of Clinical Psychiatry*, 12(6), 1-23.



# Research on Shame and HIV Outcomes

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- Cole, Kemeny, Taylor (1997)

- 9-year longitudinal study, more rapid CD4 cell decline in men who are more sensitive to rejection due to their sexuality (all participants healthy at baseline).

Cole, SW, Kemeny, ME, Taylor, SE. *Journal of Personality and Social Psychology*, Feb 72(2), 320-35.

- Segerstrom et al (1996)

- HIV-positive men with self-blaming attributional style had swifter CD4 cell declines than controls over 18 months followup

Segerstrom, SC, Taylor, SE, Kemeny, ME, Reed, SM, Visscher, BR. *Health Psychology*, Nov 15(6), 485-493.

# Impact of Shame on HRQoL Among HIV-Positive Adults with a History of CSA

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<b>Predictor Variable</b>	<b>Pearson Correlation with HRQoL</b>
HIV-related Stress	-0.40
HIV Symptoms	-0.44
Impact of Trauma	-0.47
Perceived Availability of Support	0.36
Perceived Stress	-0.64
Sexual Abuse-related Shame	-0.45
HIV-related Shame	-0.57

Persons, E, Kershaw, T, Sikkema, KJ, Hansen, NB (2010). AIDS Patient Care and STDS, 24(9).

# Relationship between HIV Stigma and Self-Isolation Among People Living with HIV in Tennessee

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- Qualitative Study, N = 32
- Three main HIV stigma themes uncovered:
  - Negative attitudes, fear of contagion, misperceptions re: transmission
  - Discrimination by family, friends, co-workers, and healthcare providers
  - Use of self-isolation as a coping mechanism

Audet, CM, McGowan, CC, Wallston, KA, Kipp, AM (2013). PLOS One, (8)8, 1-8.

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# HIV Disease Factors

# Traditional Cortisol-centrism (SDH)



**“Fight or Flight” response: turned upside down in 2013: (don’t leave the alarm on)**

- Chronic adrenaline release weakens immune system
- Chronic hyper-coagulation increases clotting risks
- Chronic release of blood sugar and fats fuels inflammation, diabetes, high cholesterol, obesity
- Chronic anxiety and aggression may drive substance abuse, eating disorders, depression

**“Fight or Flight” response: helpful in 10,000 BC:**

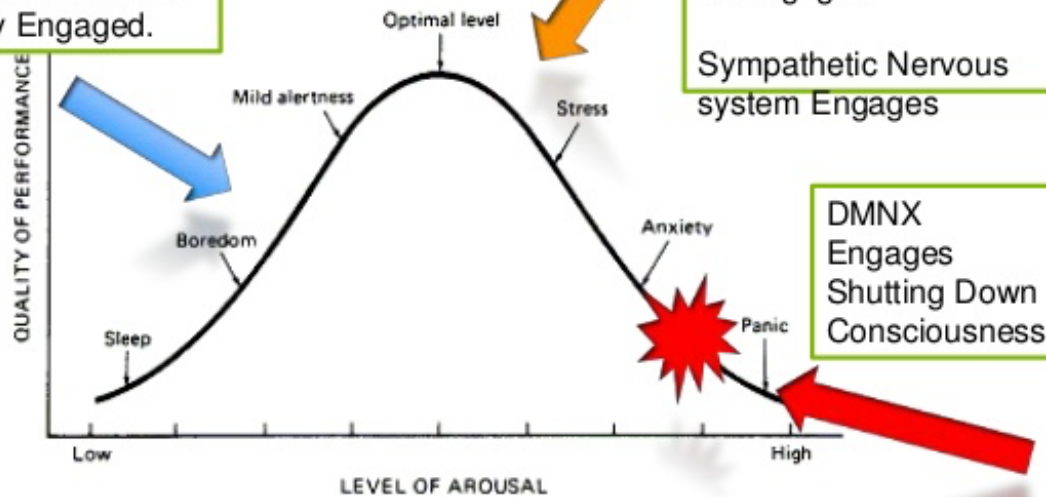
- Adrenaline release
- Hyper-coagulation to minimize blood loss
- Release of blood sugar and fats for emergency fuel
- Increased anxiety and aggression to respond to threat



# A Newer View of Social Biology

## Poly-Vagal Theory The way it works...

V.V.C Brake  
Engaged at rest and  
Socially Engaged.

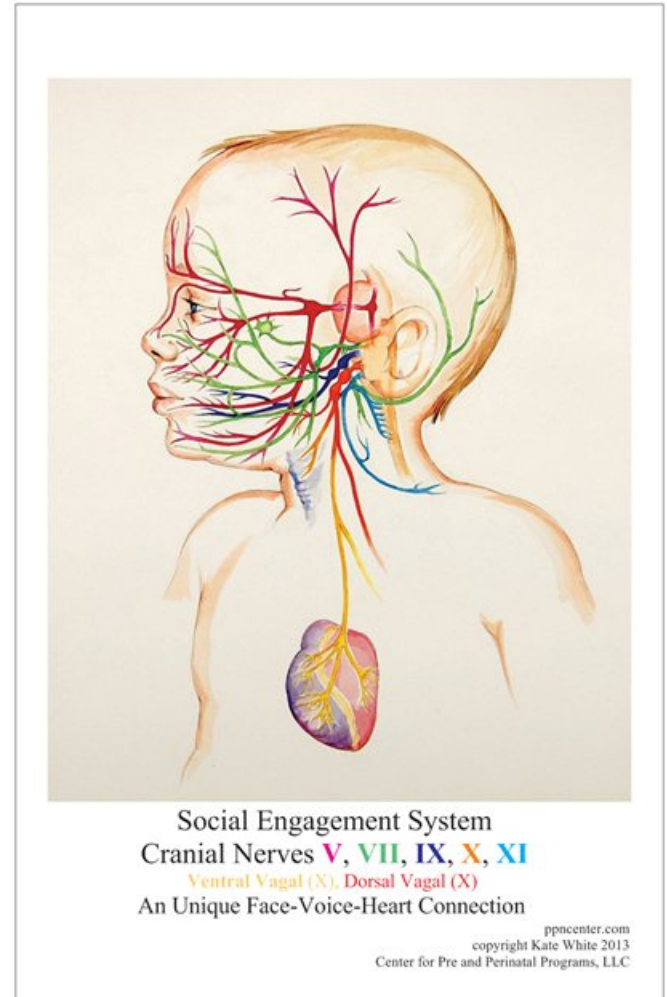


V.V.C. Brake  
Disengages  
Sympathetic Nervous  
system Engages

DMNX  
Engages  
Shutting Down  
Consciousness

# Social Engagement System

- Importance of facial recognition in negotiation of social situations
- Deficits in sensitivity to facial cues in HIV (+) samples

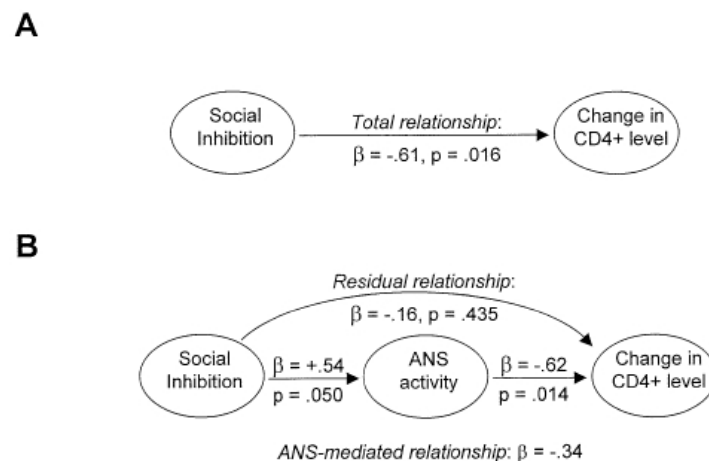
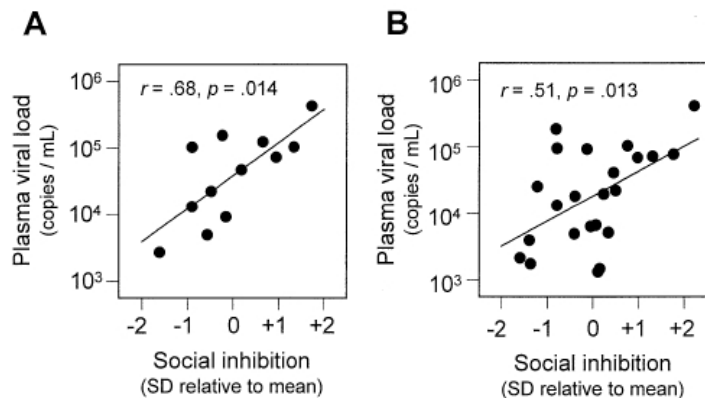


# Impact of Amygdala Abnormalities in HIV

Study Name	Significant Findings
<p>Facial Emotion Recognition Impairments associated with brain volume abnormalities in HIV (2015) <i>Neuropsychologia</i>, 70, 263-271.</p>	<p>Incr amygdala volume and atrophy in the ACC correlated with recognition of fear (ACC) and neutral facial emotions (amygdala).</p>
<p>Facial Emotional Processing in HIV: Relation to Neurocognitive and Neuropsychiatric Status (2012) <i>Neuropsychology</i>, 26(6), 713-722.</p>	<p>HIV (+) subjects without HAND slower recognition of sadness, happiness, fear. Those with HAND had slower facial recognition, slower recognition of both happy and sad faces. HIV biomarkers/affect not significant.</p>
<p>Effects of HIV and early life stress (ELS) on amygdala morphometry and neurocognitive function (2012) <i>Journal of the International Neuropsychological Society</i>, 18, 657-668.</p>	<p>HIV(+)/high ELS group had significantly larger amygdala by volume. Larger amygdala associated with higher ELS, lower nadir CD4, reduced psychomotor/processing speed</p>



# Psychological Risk Factors for HIV Pathogenesis: Mediation by the ANS



Cole, SW, Kemeny, ME, Fahey, JL, Zack, JA, Nailboff, BD. (2003) Dec 15, 54(12), 1444-1456.

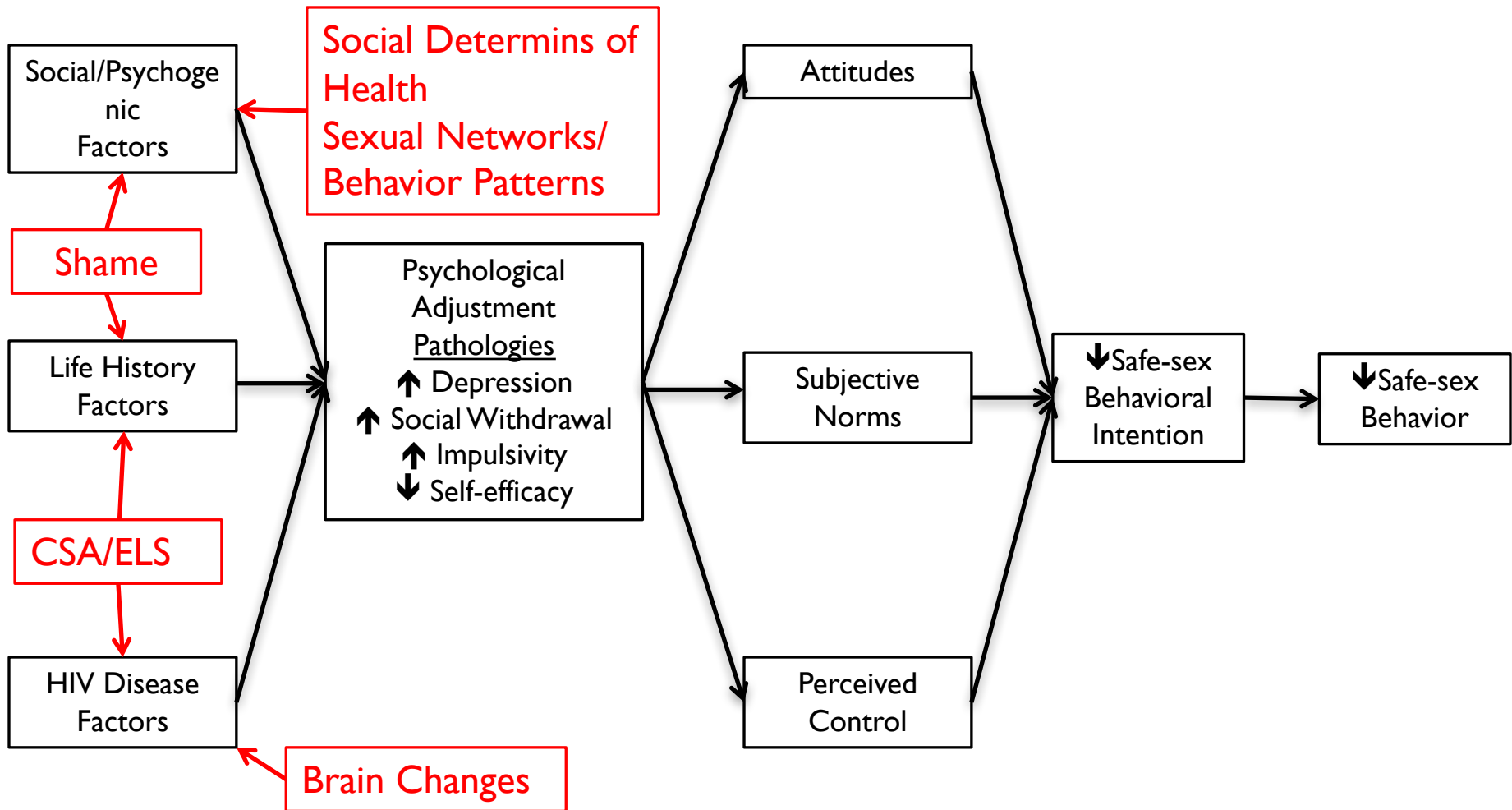
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Total PAS Score	-.47	< .001	

# Tying It All Together



# Pearls

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- Stress engagement with mental health providers for all of our patients
- Recognize the corrosive power of structural violence on marginalized communities
- Advocate for open community and patient/provider discussions re: childhood sexual abuse
- Leverage new knowledge from other fields to help deepen our understanding of daily social challenges possibly driven by biology

# Questions?

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## **Contact Information:**

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