

Age or Duration, what better determines health outcomes and behavior *among adults* *with HIV*

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Objective:

Differentiate age and time effects on health outcomes and health behaviors in HIV+ adults (*exploratory*)

- **Mental health/Substance Abuse**
- **Medical Comorbidity**
- **Cognition**
- **Health Behavior Adherence**

HIV-Aging Study: Purpose

Older adults are the fastest growing segment of the HIV(+) adult population due to

- medical treatment advancements
- increased longevity of HIV(+) adults

Problem: Limited research on HIV+ elderly

Purpose: Detect Behavioral and psychosocial age-differences

- Emerging age-differences may have clinical implications for treatment and management of HIV(+) adults and the prospect of successful aging.

HIV-Aging Study: Methods

■ Setting

- Philadelphia Center for AIDS Research (CFAR) clinical registry; University of Pennsylvania health care system infectious disease clinics
- 2004-2005



■ Cross-sectional Design

- 1 time 3-hour face-to-face interview

■ Domains Measured

- Psychiatric Status
- Alcohol/Illicit Substance Use
- Comorbidity (medical/emotional)
- Medical Adherence/Health Behavior Lifestyle
- Cognition

HIV-Aging Study: Sample

	Total Sample (N=109)	Younger (21-49 years) (57% N=62)	Older (50-88 years) (43% N=47)	P-values
Age (years)	49.4(14.0)	39.6(7.7)	62.2(9.3)	< .001
Gender (% Males)	55.0%	45.1%	68.0 %	< .02
Ethnicity (% White)	32.4%	30.6%	34.7%	n/s
Education (years)	13.0(3.7)	12.4(2.7)	13.8(4.7)	n/s*
Income (nearest thousand)	29K(39K)	31K(43K)	27K(33K)	n/s
Marital Status (% Single)	56.0%	67.2%	41.3%	< .002
Living Status (% Alone)	42.0%	29.5%	58.7%	< .003
Social Support	4.2(1.0)	4.2(1.0)	4.1(1.1)	n/s
Work Status (% full-time)	17.7%	21.3%	13.0%	< .001
Insurance (% No Insurance)	3.7%	5.0%	2.1%	< .02
Duration of HIV	9.8(6.1)	10.1(6.2)	9.5(6.1)	n/s
HIV contact (% Sexual)	69.8%	67.2%	73.3	n/s



Age Status vs. Aging

- **Mental health/Substance Abuse**
- **Medical Comorbidity**
- **Cognition**
- **Health Behavior Adherence**

Results: Mental health/Substance Abuse

<u>Age Groups</u>	Total Sample (N=109)	Younger (N=62)	Older (N=47)	χ^2 P-values
Any MHSA Condition	73.3% (N=79)	80.6% (N=50)	63.8% (N=29)	< .03
Comorbid	24.3% (N=26)	29.0% (N=18)	17.7% (N=8)	n/s
Depression	45.7% (N=48)	50.8% (N=31)	38.6% (N=17)	n/s
Illicit Drug Use	38.5% (N=42)	45.1% (N=28)	29.7% (N=14)	n/s
Excluding Cannabis	20.1% (N=22)	24.1% (N=15)	25.5% (N=7)	--
Mania	7.5% (N=8)	8.2% (N=5)	6.6%(N=3)	--
Psychosis	7.5% (N=8)	9.8% (N=6)	4.4% (N=2)	--
Anxiety	20.5% (N=22)	22.5% (N=14)	17.7% (N=8)	--
PTSD	12.1% (N=13)	16.1% (N=10)	6.6% (N=3)	--
Suicidal Ideation	18.8% (N=20)	26.2% (N=16)	8.8% (N=4)	--
At-risk Drinking	13.7% (N=15)	17.7% (N=11)	8.5% (N=4)	--

Results: Mental health/Substance Abuse

<u>Age Groups</u>	<u>Age</u>	<u>HIV Duration</u>
	Estimate (p-value)	Estimate (p-value)
Any MHSA Condition	0.97 (<.03)	1.05 (n/s)
Comorbid	0.97 (n/s)	1.06 (n/s)
Depression	0.99 (n/s)	1.00 (n/s)
Illicit Drug Use	0.97 (.04)	1.05 (n/s)
Excluding Cannabis	0.97 (n/s)	1.10 (<.04)
Mania	0.96(n/s)	1.06 (n/s)
Psychosis	0.94 (n/s)	1.19 (.03)
Anxiety	0.98 (n/s)	0.98 (n/s)
PTSD	0.94 (n/s)	0.95 (n/s)
Suicidal Ideation	0.96 (.02)	1.02 (n/s)
At-risk Drinking	0.97 (n/s)	1.04 (n/s)

Results: Medical Comorbidity

	Total Sample (N=109)	Younger (N=62)	Older (N=47)	χ^2 P-values
Total Morbidities	3.11(2.7)	2.44(2.4)	4.02(2.8)	< .002
Diabetes	16.5%(N=18)	6.5%(N=4)	29.8% (N=14)	.001
Hypertension	35.2%(N=38)	19.4%(N=12)	56.5% (N=26)	<.001
Heart Trouble Circulation	11.9%(N=13)	3.2%(N=2)	23.4% (N=11)	.001
	12.8%(N=14)	6.5%(N=4)	21.3% (N=10)	.02
Arthritis/Rheu	33.3%(N=36)	22.6%(N=14)	47.8% (N=22)	<.006
Stomach Ulcer	8.3%(N=9)	3.2%(N=2)	14.9% (N=7)	--
Glaucoma	8.3%(N=9)	1.6%(N=1)	17.0% (N=8)	--
Cataracts	7.3%(N=8)	1.6%(N=1)	14.9% (N=7)	--
Cancer	7.4%(N=8)	1.6%(N=1)	14.9% (N=7)	--

Note. No differences for: paralysis (N=4*), stroke (N=2), emphysema/asthma (N=18*), liver trouble (N=13*), gall bladder trouble (N=5), kidney trouble (N=9*), bladder trouble (N=16), broken hip (N=1*), broken bone (N=8^e), anemia (N=21*), Parkinson's disease (N=1), sleep trouble (N=56), and skin trouble (N=37*).

Results: Medical Comorbidity

	Age Estimate (p-value)	HIV Duration Estimate (p-value)
Total Morbidities	.27 (.02)	.02 (n/s)
Diabetes	1.05 (.01)	1.04 (n/s)
Hypertension	1.05 (<.003)	0.95 (n/s)
Heart Trouble Circulation	1.05 (<.02)	0.97 (n/s)
Arthritis/Rheu	1.04 (n/s)	0.99 (n/s)
Glaucoma	1.04 (.009)	0.91 (n/s)
Cataracts	1.02 (.006)	0.87 (n/s)
Cancer	1.03 (.002)	1.24 (n/s)
	1.01 (.018)	0.85 (n/s)

Note. No effects for: paralysis, circulation*, stroke, stomach ulcer*, emphysema/asthma, liver trouble, gall bladder trouble, kidney trouble, bladder trouble, broken hip, broken bone, anemia, Parkinson's disease, sleep trouble, and skin trouble.

Results: Cognition

	Total	Younger N=62	Older N=47	
	Mean(SD)			p-value
<u>Functional Ability: Grooved Pegboard</u>				
Right Hand	42.32 (11.5)	42.77	41.70	n/s
Left Hand	42.76 (12.3)	42.46	43.18	n/s
<u>Attention: Digit-Span,</u>	44.76(8.6)	44.95	44.51	n/s
<u>Memory: Hopkins Verbal Learning</u>				
Immediate-Recall	36.99(11.0)	35.15	39.44	.0458
Delayed-Recall	35.99(12.4)	34.03	38.60	n/s
Retention	40.95(15.0)	39.53	42.84	n/s
Recognition Discrimination Index	43.11(13.6)	43.60	42.46	n/s
<u>Flexibility/Inhibition: Stroop</u>				
Correct Black/White	42.15(8.6)	42.19	42.09	n/s
Correct Color	40.43(10.1)	41.55	38.75	n/s
Correct Color and B/W	40.78(9.7)	40.62	41.02	n/s
Interference	48.08(7.5)	47.49	48.97	n/s
<u>Verbal Fluency: Semantic</u>	52.35 (10.7)	50.36	55.11	.0239
<u>Problem Solving Ability: Tower of London</u>	46.80(11.1)	45.31	48.88	n/s
<u>Cognitive Impairment: Mini Mental Exam</u>	27.36(2.2)	27.44	27.26	n/s

Results: Cognition

	Age Estimate (p-value)	HIV Duration Estimate (p-value)
<u>Functional Ability: Grooved Pegboard</u>		
Right Hand	.01 (n/s)	-.09 (n/s)
Left Hand	.06 (n/s)	-.14 (n/s)
<u>Attention: Digit-Span</u>	.03 (n/s)	.10 (n/s)
<u>Memory: Hopkins Verbal Learning</u>		
Immediate-Recall	.21 (.04)	-.02 (n/s)
Delayed-Recall	.25 (.01)	.01 (n/s)
Retention	.27 (.008)	.00 (n/s)
Recognition Discrimination Index	.01 (n/s)	-.14 (n/s)
<u>Flexibility/Inhibition: Stroop</u>		
Correct Black/White	.08 (n/s)	.17 (n/s)
Correct Color	-.10 (n/s)	-.04 (n/s)
Correct Color and B/W	.08 (n/s)	-.01 (n/s)
Interference	.08 (n/s)	-.09 (n/s)
<u>Verbal Fluency: Semantic</u>	.26 (.01)	.00 (n/s)
<u>Problem Solving Ability: Tower of London</u>	.18 (n/s)	-.07 (n/s)
<u>Cognitive Impairment: Mini Mental Exam</u>	.02 (n/s)	.05 (n/s)

Results: Health Behavior Adherence

	Total Sample (N=109)	Younger (N=62)	Older (N=47)	χ^2 P-values
Med Adherence (% Yes)				
Forgetting	49.5%(N=46)	54.9%(N=28)	42.9%(N=18)	n/s
Carelessness	28.0%(N=26)	33.3%(N=17)	21.4%(N=9)	n/s
Stopping (better)	6.5%(N=6)	9.8%(N=5)	2.4%(N=1)	n/s
Stopping (worse)	15.1%(N=14)	21.6%(N=11)	7.1%(N=3)	>.05
Health Behavior (% Risky)				
Diet/Nutrition	12.3%(N=13)	14.8%(N=9)	8.9%(N=4)	n/s
Weight	19.1%(N=20)	23.0%(N=14)	13.6%(N=6)	n/s
Physical Activity	78.9%(N=86)	74.2%(N=46)	85.1%(N=40)	n/s
Seat Belt Use	28.0%(N=28)	20.1%(N=16)	26.7%(N=12)	n/s
Dental Care	49.5%(N=54)	56.5%(N=35)	40.4%(N=19)	n/s
Medical Care	39.5%(N=43)	43.6%(N=27)	34.0%(N=16)	n/s
Smoking	41.3%(N=45)	58.1%(N=36)	19.2%(N=9)	<.001
Alcohol Consumption	9.2%(N=10)	9.7%(N=6)	8.5%(N=4)	n/s
Sleep	42.2%(N=46)	38.7%(N=24)	46.8%(N=22)	n/s
Total Riskiness	3.91(1.4)	4.18(1.3)	3.55(1.3)	<.02

Results: Health Behavior Adherence

	Age Estimate (p-value)	HIV Duration Estimate (p-value)
Med Adherence (% Yes)		
Forgetting	0.97 (n/s)	1.07 (n/s)
Carelessness	0.99 (n/s)	1.04 (n/s)
Stopping (better)	0.96 (n/s)	1.16 (n/s)
Stopping (worse)	0.95 (n/s)	1.17 (.01)
Health Behavior (% Risky)		
Diet/Nutrition	0.98 (n/s)	1.00 (n/s)
Weight	0.98 (n/s)	1.00 (n/s)
Physical Activity	1.01 (n/s)	1.00 (n/s)
Seat Belt Use	0.98 (n/s)	0.91 (03)
Dental Care	0.94 (02)	1.02 (n/s)
Medical Care	0.97 (.04)	1.05 (n/s)
Smoking	0.95 (<.004)	1.05 (n/s)
Alcohol Consumption	0.99 (n/s)	1.02 (n/s)
Sleep	1.02 (n/s)	0.93 (.03)
Total Riskiness	-.26 (.006)	.00 (n/s)

Summary

■ Differentiate the effect on age and HIV

■ Mental health/Substance Abuse

- Younger individual at higher risk.
- Longer duration at higher risk for illicit drug use (excluding cannabis) and psychosis

■ Medical Comorbidity

- Older individuals at higher risk
- No effect of duration

■ Cognition

- Younger adults at higher risk
- No effect of duration

■ Health Behavior Adherence

- Younger adults at higher risk poor medication adherence, smoking, and total health behavioral riskiness
- Longer duration at higher risk for poor medication adherence
- Shorter duration at higher risk for poorer seat belt use and sleep

Conclusions

- **Health disadvantage of HIV+ adults**
 - Older adults: Medical Comorbidity
 - Living longer with HIV-illicit drug use/psychosis, and HIV medication adherence
 - Younger adults: MH/SA conditions, cognition, health behaviors
- **Future research aimed at improving health quality of HIV+ adults**
 - Longitudinal
 - Continuous reinforcement
 - Aging effects

The End

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