Aging with HIV? I’m fine, thanks for asking!

Nancy Mayo, Marie-Josée Brouillette, Lesley Fellows
The Positive Brain Health Now investigators

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New York
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I have no conflicts of interest to disclose
Is the glass half full or half empty?

- Much attention is being paid to frailty in people aging with HIV
- Less attention is paid to those doing “well – thank you”
- Much could potentially be learned from those doing well
At risk or at promise?

- Factors that predict risk of sub-optimal outcomes are not necessarily the mirror image of factors that predict promise of optimal outcomes
- Who has thought about this?
- Who has looked at this?
Moving Toward a Holistic Conceptual Framework for Understanding Healthy Aging Among Gay Men

<table>
<thead>
<tr>
<th>Macro-level factors</th>
<th>Meso-level factors</th>
<th>Micro-level factors</th>
<th>Health outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of the residential neighborhood</td>
<td>Civic engagement</td>
<td>Sociodemographic characteristics</td>
<td>Health states:</td>
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<td>Characteristics of primary socialization neighborhoods</td>
<td>Social engagement</td>
<td>Psychosocial burdens</td>
<td>Physical Health</td>
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<td>Healthcare provider availability</td>
<td>Religious engagement</td>
<td>Social integration</td>
<td>Mental/Neurocognitive Health</td>
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<td>Housing instability</td>
<td>Social support</td>
<td>Health</td>
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<td></td>
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<td>Social networks</td>
<td>Sexual Health</td>
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<td></td>
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<td>Healthcare utilization</td>
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</tbody>
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**FIGURE 1** Multilevel conceptual model for studying the health of aging gay men.
Successful aging and the epidemiology of HIV

Figure 1 Factors of and obstacles to successful aging with HIV.
RESEARCH ARTICLE

Behavioural Risk Factors in Mid-Life Associated with Successful Ageing, Disability, Dementia and Frailty in Later Life: A Rapid Systematic Review

Louise Lafortune¹‡*, Steven Martin¹‡, Sarah Kelly¹, Isla Kuhn², Olivia Remes¹, Andy Cowan¹, Carol Brayne¹

164 cohort studies between 2000 and 2014

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
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<tbody>
<tr>
<td>Physical activity</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Healthy diet</td>
<td>Weight change</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>Leisure cognitive activities</td>
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</tbody>
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Review

Understanding mechanisms to promote successful aging in persons living with HIV

Gerome V. Escota*, Jane A. O'Halloran, William G. Powderly, Rachel M. Presti

Division of Infectious Diseases, Washington University School of Medicine, Saint Louis, MO, USA

<table>
<thead>
<tr>
<th>Science</th>
<th>People</th>
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<tbody>
<tr>
<td>avoidance of disease and disease-related disability (including risk factors for developing them), high cognitive and physical functional capacity (i.e., sustaining physical, mental, and emotional aptitude for performing activities), and active engagement with life</td>
<td>independence, resilience, coping mechanisms, and overall well-being</td>
</tr>
</tbody>
</table>
What is Successful Aging?

- 25 unique definitions of successful aging
- Prevalence rates (1–94%, median 35%)
- Classical definition (Rowe and Kahn 1987)
  - Avoidance of disease and disability
  - Maintenance of high physical and cognitive function, and
  - Sustained engagement in social and productive activities
- Physical and functional disability is the one included as a component of more than half of the definitions of successful aging.
Dilemma: How can “healthy aging” apply to people with HIV?

Aging well
Research objective

- To describe the profile of people who are aging well with HIV and
- To identify factors that place people at promise for aging well.
Methods
Positive Brain Health Now cohort study

- Eligibility criteria:
  1. ≥35 years old
  2. HIV + at least 1 year

- Study visit every 9 months
  - Medical information
  - Cognitive tasks
  - Questionnaires

N Mayo et al. BMC Neurology, 2016, 16:8
Who is in the Brain Health Now cohort?

- **N = 856** (802 with data)
- **Working:** ~43%
- **84% men**
- **Mean age 53 y**

...and who is not in the cohort?
- dementia, other neurological condition
- younger
- working, “too busy”
- much lower on cognitive symptoms

### Biological Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Duration of HIV (mean/SD)</td>
<td>17 (8) years</td>
</tr>
<tr>
<td>Nadir CD4 cell count (mean/SD)</td>
<td>218 (212) cells/mm³</td>
</tr>
<tr>
<td>Current CD4 count (mean/SD)</td>
<td>623 (275) cells/mm³</td>
</tr>
<tr>
<td>AIDS defining illnesses (ADI)</td>
<td>55%</td>
</tr>
</tbody>
</table>
Measurement

SF-36, a measure of health status, used as indicator of aging well
Measurement

**Outcome: SF-36**

7-8/8 subscales ≥ norm
- Physical Function (PF)
- Pain
- Vitality (VIT)
- Social Function (SF)
- Role Physical (RP)
- Role Emotional (RE)
- Mental Health (MH)
- General Health Perception (GHP)

**Promise Factors**
- Socio-demographic
- HIV
- Co-morbidity
- Life-style
- Cognition
- Social support
- Loneliness
- Stigma
Analysis: Logistic Regression

- Probability of “aging well” as a function of promise factors
- Odds Ratio (OR), 95% CI
Results
Profile of SF-36 for BHN Men

Diagram showing the profile of SF-36 for BHN Men with categories: PFI, MHI, ROLPH, ROLEM, SOCIAL, GHP, and VITAL.
Profile of SF-36 for BHN Women
Most Common Profiles of SF-36

- None at norm: 18
- 7/8 at norm: 14
- All at norm: 6
- Only PFI at norm: 4
Proportion of BHN cohort (n=802) with 0 to 8 of SF-36 subscales at or above norms
Outcome of Analysis

No association
- Age, Sex,
- Nadir CD4
- BMI
- Inflammation (CRP)
- Alcohol consumption
- Cardiovascular risk
- Global co-morbidity
- Hours of engagement in meaningful activities

Promise Factors
- University education
- No arthritis or lung disease
- Better cognitive testing
- Fewer reported cognitive problems
- Being physically active
- Having friends or family
- Not being lonely
- Low stigma
- Not smoking (borderline)
PROMISE: Prevalence of Having a University Education according to Number of SF-36 Subscales at Norm or Better
PROMISE: Prevalence of Being Physically Active and Not Currently Smoking according to Number of SF-36 Subscales at Norm or Better
PROMISE: Prevalence of Lung Disease and Arthritis according to Number of SF-36 Subscales at Norm or Better
PROMISE: Prevalence of Not Being Bothered by People Blaming for HI Status (Stigma) According to Number of SF-36 Subscales at Norm or Better
PROMISE: Prevalence of Knowing 5 or More People Well and Almost Never Feeling Lonely According to Number of SF-36 Subscales at Norm or Better
Average Cognitive Test Scores and Self-Reported Cognitive Difficulties according to Number of SF-36 Subscales at Norm or Better

B-CAM Test Scores: Range 0-36; Higher is better; cut-point for cognitive impairment is 19

Perceived Deficits Questionnaire: Range 0-100; Higher is worse; 50 is cut-point for cognitive impairment
Average Framingham Risk Score According to Number of SF-36 Subscales at Norm or Better
Conclusions
Many of the promise factors are early life-course variables (education, friends, physical activity), others more likely to contribute to aging well (stigma, loneliness, cognition) rather than being a consequence. Maintaining physical activity, cognition, and social network are three variables showing promise for aging well with HIV.
Half full or half empty

- This study showed that 14% met our criteria for “superstar” status.

- This is in contrast to only 8% meeting criteria for frailty (Low BMI, low physical function, exhaustion).

- Focusing on people aging well with HIV could be a fruitful avenue to explore to not only promote successful aging with HIV but also to identify ways of preventing or arresting frailty.
The participants of the Positive Brain Health Now cohort

The research assistants
- Melissa Vu
- Laurence Desjardins
- Sandra Mendoza
- Marianna Rusler
- Esther Eyawo

The Co-Investigators:
- Drs. Réjean Thomas,
- Dr. Graham Smith,
- Dr. Fiona Smail,
- Dr. Marianne Harris

Funded by:

Community Partners:

Participating Clinical Sites:

Private Partners:
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www.brainhealthnow.mcgill.ca
Mean CRP according to Number of SF-36 Subscales at Norm or Better