Use of Living Strategies among Adults Aging with HIV in Canada: Comparison by Age-Group Using Data from the HIV, Health and Rehabilitation Survey

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Abstract

Objective: To examine the type and frequency of living strategies used by adults living with HIV. Methods: We conducted a cross-sectional web-based survey that included 51 living strategies: maintaining sense of control, attitudes and beliefs, blocking HIV out of the mind, and social interaction. We examined the frequency of use and compared the proportion of respondents who engaged in strategies across 3 age-groups (<40 years, 40-49 years, and ≥50 years). Results: Of the 935 participants, the majority were men (79%) and most (>60%) engaged “most” or “all of the time” in healthy lifestyle strategies and maintained a positive outlook living with HIV. Compared to younger participants, a higher proportion of older adults (≥50 years) engaged “most” or “all the time” in strategies that involved maintaining control over health and adopting positive attitudes and outlook living with HIV. Conclusions: Findings can help to inform the role of self-management to enhance successful aging with HIV.

Keywords

HIV/AIDS, aging, rehabilitation, coping, resiliency, self-management

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Introduction

With increased access to antiretroviral therapy (ART), HIV is transitioning into a chronic illness, whereby individuals on treatment are living to similar life expectancy of the general population. Estimates from UNAIDS suggest that the prevalence of HIV among older adults aged ≥50 years has increased steadily since 1995 to an estimated 4.2 million worldwide and will continue to increase. In Canada, the prevalence of older adults (≥50 years) living with HIV is expected to increase, as individuals who were diagnosed at younger ages are now surviving into older age, as well as new diagnoses emerging among older adults. Similar trends are seen in the United States, where in 2013, an estimated 26% of all people living with HIV were 55 years and older.

As individuals age with HIV, they can experience a higher prevalence and earlier onset compared to the general population of multimorbidity including cardiovascular disease, mental health issues, bone and joint disorders, diabetes, renal failure and chronic lung disease. Health-related sequelae associated with multimorbidity can result in increased frailty, functional decline, and disability—defined as the combination of multidimensional (physical, cognitive, mental, emotional, and social) health challenges living with HIV including uncertainty or worrying about future health.8–10

The Episodic Disability Framework was derived from the perspective of adults living with HIV to characterize the multidimensional and sometimes fluctuating nature of health challenges in people living with HIV. The Framework includes 3 main components: (1) dimensions of disability which include physical, cognitive, mental, and emotional symptoms and impairments, difficulties with day-to-day activities, challenges to social inclusion, and uncertainty or worrying about future health; (2) contextual factors that include extrinsic (social support and stigma) and intrinsic (living strategies and personal attributes) factors, which may interact with and influence disability; and (3) triggers, known as major or momentous life events that may trigger an episode of disability such as receiving a new health diagnosis, changing a medication regimen, or experiencing a health event.10,11 The Episodic Disability Framework has been validated with a sample of adults living with HIV in Ontario and provides a novel approach for conceptualizing the multidimensional and episodic nature of disability experienced by adults living with HIV.12 The Framework has been used to describe the physical, neurocognitive, and social participation challenges13,14 as well as uncertainty15,16 and the role for rehabilitation in the context of HIV.17,18 This Framework is a foundation for this study.

Disability may differ among older versus younger adults with HIV.19 Older adults living with HIV are at increased risk of frailty, possess higher rates of daily functional impairments and social participation restrictions, and are more likely to experience mental health challenges and social isolation compared to the general population.20,21 Older adults with HIV may further face challenges with uncertainty surrounding financial insecurity, transitioning into retirement and changes in long-term housing.15 Hence, there is a need to better address the multidimensional and complex health-related consequences of HIV and multimorbidity across age groups and to identify ways to enhance successful aging with HIV.22 However, access to formalized health and rehabilitation services may be limited to people living with HIV due to, for example, lack of awareness or financial barriers to government coverage for services.23 Hence, many adults living with HIV are left to employ individual coping or living strategies to deal with their health-related challenges.

Coping, stress, and health are interrelated concepts. The way in which an individual experiences and assesses a stressful situation will determine how he or she goes about responding to it.24 Living strategies is a newly emerging term that may be considered analogous to coping in the context of HIV. The concept of “living strategies” was derived from the perspective of people living with HIV as a component of the Episodic Disability Framework, defined as behaviors, attitudes, and beliefs adopted by people living with HIV to help deal with disability associated with HIV and multimorbidity.11 The term “living strategies” is distinct from “coping” because it acknowledges strategies that can have both positive and negative influences on health. Examples of living strategies include seeking social interaction with others, maintaining a sense of control over life, blocking HIV out of the mind, and maintaining positive attitudes and beliefs living with HIV.11 While most strategies have positive influences on health, isolating oneself from others and engaging in substance use to “block HIV out of the mind” are strategies that can have negative consequences on overall health and well-being.11

Despite the potential benefits of living strategies, the nature and extent to which people living with HIV utilize them and the extent to which strategy use differs across age groups for people living with HIV is unknown. Understanding how living strategies are used among older and younger adults with HIV can help to identify ways health-care providers can promote positive, timely, and age-appropriate self-management approaches for enhancing health.25,26 Our aim was to examine the type and frequency of living strategies used by adults living with HIV and to examine living strategy use within our sample across 3 age groups (<40, 40-49, and ≥50 years).

Methods

We conducted a cross-sectional, self-administered, web-based survey in adults (18 years of age or older) living with HIV in Canada. We used a community engagement approach to the survey design and implementation, and interpretation of the data involving a team of researchers, knowledge user organizations, people living with HIV, and representatives from community-based organizations, including Realize, a Canadian governmental organization dedicated to improving rehabilitation services for people living with HIV through research, education, policy, and practice.27 This study was approved by Research Ethics Boards at the University of Toronto,
University of Victoria, McMaster University, and Dalhousie University.

The HIV, Health, and Rehabilitation Survey instrument was developed by our multidisciplinary team to assess disability and rehabilitation services use among people living with HIV. The survey instrument was composed of sections on disability, rehabilitation services use, comorbidities, living strategies, social support, stigma, and demographic and disease characteristics. It was developed, pretested, and piloted by researchers, knowledge users, and collaborators across Canada. We administered the survey using Lime Survey software. In this article, we specifically focus on the sections and findings pertaining to living strategies and the demographic and disease characteristics of adults living with HIV.

Survey Instrument

To our knowledge, no preexisting HIV-specific measure of living strategies is available in the literature. Hence, we developed items based on categories that pertained to living strategies in the Episodic Disability Framework, a conceptual framework validated in people living with HIV. Fifty-one items spanned strategies related to seeking social interactions with others (10 items), maintaining a sense of control over life (lifestyle, re-establishing purpose in life, maintaining life balance, planning for and anticipating the future, and paying attention to the numbers, such as viral load; 26 items), attitudes and beliefs (outlook on life, faith, and spirituality; 8 items), and blocking HIV out of the mind (7 items). For each item, participants were asked how often they used a given living strategy in the past month ranging from 0 = “none of the time (eg, not at all),” 1 = “a little of the time (eg, few times a month),” 2 = “some of the time (eg, weekly),” 3 = “most of the time (eg, few times a week),” and 4 = “all of the time (eg, every day).” We asked in the form of 2 questions whether collectively the personal living strategies (n = 41) and social interaction living strategies (n = 10) helped reduce, minimize, or prevent day-to-day health challenges living with HIV (n = 10).

Participants and Recruitment

We recruited adults living with HIV (18 years of age or older) in Canada who were able to read and understand English. We used a modified Dillman Tailored Design Method in collaboration with a total of 28 publicly funded community-based organizations and HIV clinics across Canada using a 4-step e-mail or e-blast approach that included an initial e-mail invitation with the link to the survey questionnaire and thank-you or follow-up reminder e-mails at 1, 4, and 5 weeks after the initial invitation. E-mails and e-blasts were sent by community organizations and clinics to a sampling frame composed of over 4800 known clients living with HIV. Recruitment was supplemented by electronic (e-mails, newsletters, websites, video) and on-site (posters, cards) strategies along with snowball sampling. Participants received a $25 CAD electronic gift card as a token of appreciation for their participation.

Analysis

We downloaded survey responses from Lime Survey software into SAS 9.3 (IBM/SAS Institute) for analysis. Mean imputation was performed for items with <5% missingness. We dichotomized living strategies into 2 categories of frequency: (1) none, a little, or some of the time and (2) most of the time or all of the time. We reported the frequency and percentage of respondents who engaged in each strategy most or all of the time. Using the Episodic Disability Framework, we conceptualized 37 of the items as having positive influences on health, 8 having negative influences on health, and 6 potentially as having either a positive or negative influence on health dependent on the individual and context (Table 1).

We categorized age into 3 groups: <40 years of age, 40 to 49 years of age, and ≥50 years of age. The Public Health Agency of Canada defines older adults living with HIV as 50 years of age and older. We chose the above 3 age categories as Emlet et al reported benefits to interpretation when categorizing age because this takes into account the relationship of HIV and its impact across different age generations in the life course.

We described the frequency of living strategy use and compared the proportion of participants who engaged in living strategies most (few times per week) or all the time (every day) versus none, a little, or some of the time across age groups (<40 years, 40-49 years, and ≥50 years). We used pairwise tests with Tukey-type adjusted P values for multiple comparisons to determine statistically significant differences between age groups. Analyses were conducted using SAS statistical software.

Results

Of the 1850 people who accessed the survey, 1477 (80%) initiated and 1171 (79%) completed the survey. We removed 230 cases due to large amounts of missing responses, suspected multiple responses, and nonsensical responses, resulting in 941 complete and estimated valid responses. Each item in the living strategies section had less than 2% of responses missing. Of the 941 participants who completed the questionnaire, 935 (99%) answered the age item and were included in the analysis. The majority of participants were men (79%), with a median age of 48 years (interquartile range (IQR): 38-54 years) and median year of HIV diagnosis of 2000 (IQR: 1993-2007). Most (90%) respondents were taking antiretroviral medications and 65% reported an undetectable viral load. The majority were single (55%) and 38% were employed. Among the respondents, 26% were younger than 40 years, 30% were 40 to 49 years old, and 43% were 50 years or older (Table 2). Compared to younger participants, a greater proportion of older participants (≥50 years) were living alone, living longer with their diagnosis, were taking ART, had some or completed university or postgraduate education, rated their health status as good, fair, or poor (opposed to excellent or very good), and fewer were working for pay.
Table 1. Living Strategy Items and Corresponding Intrinsic Contextual Factor Domain in the Episodic Disability Framework.\textsuperscript{a}

| Living Strategy Item                                                                 | Living Strategy Conceptualized as Having Positive (\(\text{+}\)) or Negative (\((-\)) Influence on Health | Intrinsic Contextual Factor | Subcategory of Intrinsic Contextual Factor |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------|
| *Maintaining sense of control over life (n = 26 items)*                            |                                                                                                   |                             |                                           |
| 1) I make sure I get enough sleep                                                  \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 2) I take a break or nap when I need to                                             \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 3) I make sure I eat healthy                                                        \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 4) I brush my teeth and practice good dental care                                    \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 5) I exercise                                                                       \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 6) I take medications as discussed with my doctor                                    \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 7) I try to avoid people or things that stress me out                                \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle (related to social relationships) |
| 8) I smoke cigarettes                                                               \(\text{-}\)                                                                                   | Maintaining sense of control over life                                                             | Lifestyle                   |
| 9) I focus on a hobby                                                                \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 10) I focus on maintaining my health living with HIV                                 \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 11) I focus on things such as work and friends because HIV is not my main focus in life \(\text{+}\) | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 12) I make HIV the main focus of my life                                            \(\text{+/-}\)                                                                   | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 13) I make maintaining my health the main focus of my life                          \(\text{+/-}\)                                                                   | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 14) I am involved in volunteerism, activism, and advocacy related to HIV            \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 15) I engage in activities of artistic expression (such as drawing, painting, dancing, singing, writing, etc) \(\text{+}\) | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 16) I try to manage my finances                                                     \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Establishing purpose and focus in life               |
| 17) I maintain a good balance of activity in my life                                 \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Maintaining life balance                             |
| 18) I try to stick to a daily structure or routine                                  \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Maintaining life balance                             |
| 19) I prioritize and try not to overdo it when it comes to my daily activities       \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Maintaining life balance                             |
| 20) I tend to overdo it by working or volunteering long hours                       \(\text{-}\)                                                                                   | Maintaining sense of control over life                                                             | Maintaining life balance                             |
| 21) I plan for and anticipate changes in my health                                   \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Planning for, anticipating future                   |
| 22) I plan ahead at work or in my daily routine for possible fluctuations in my health \(\text{+}\) | Maintaining sense of control over life                                                             | Planning for, anticipating future                   |
| 23) I make to-do lists to help me keep on track with my daily routine                \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Planning for, anticipating future                   |
| 24) I learn what I can about HIV so that I am informed about my illness              \(\text{+}\)                                                                                   | Maintaining sense of control over life                                                             | Planning for, anticipating future                   |
| 25) I pay attention to the numbers (for example my viral load and CD4 counts) as a way to keep on top of my health \(\text{+}\) | Maintaining sense of control over life                                                             | The numbers (CD4 count and viral load)            |
| 26) I use websites or applications to track my details (counts, medications, other conditions) \(\text{+}\) | Maintaining sense of control over life                                                             | The Numbers (CD4 count and viral load)            | (continued)
### Table 1. (continued)

| Living Strategy Item | Living Strategy Conceptualized as Having Positive (+) or Negative (−) Influence on Health | Intrinsic Contextual Factor | Subcategory of Intrinsic Contextual Factor |
|----------------------|-------------------------------------------------|-----------------------------|------------------------------------------|
| **Attitudes and beliefs (n = 8 items)** | | | |
| 27) I consider myself healthy living with HIV | + | Attitudes and beliefs | Outlook on life |
| 28) I accept and value who I am the good and the bad | + | Attitudes and beliefs | Outlook on life |
| 29) I have a positive outlook on life and use hope and optimism to live with HIV | + | Attitudes and beliefs | Outlook on life |
| 30) I accept that my health can fluctuate with good days and bad days living with HIV | + | Attitudes and beliefs | Outlook on life |
| 31) I choose to believe I can survive and overcome any challenges living with HIV | + | Attitudes and beliefs | Outlook on life |
| 32) I get upset if I don’t get to everything I set out to do in a day | − | Attitudes and beliefs | Outlook on life |
| 33) I feel hopeless living with HIV | − | Attitudes and beliefs | Outlook on life |
| 34) I draw on faith and spirituality to deal with my challenges living with HIV | + | Attitudes and beliefs | Faith and spirituality |
| **Blocking HIV out of the mind (n = 7 items)** | | | |
| 35) I ignore my HIV status | − | Blocking HIV out of the mind | − |
| 36) I ignore my numbers (viral load and CD4 count) | − | Blocking HIV out of the mind | − |
| 37) I drink alcohol as an escape to forget the challenges living with HIV | − | Blocking HIV out of the mind | − |
| 38) I try to forget I’m living with HIV | +/- | Blocking HIV out of the mind | − |
| 39) I use drugs recreationally to forget the challenges living with HIV | +/- | Blocking HIV out of the mind | − |
| 40) I use sex as a way to forget the challenges of living with HIV | +/- | Blocking HIV out of the mind | − |
| 41) I go shopping to forget the challenges living with HIV | +/- | Blocking HIV out of the mind | − |
| **Seeking social interaction with others (n = 10 items)** | | | |
| 42) I spend time with my friends, partner, extended chosen or biological family, or pets | + | Seeking social interaction with others | − |
| 43) I spend time with work (or volunteer) colleagues | + | Seeking social interaction with others | − |
| 44) I spend time with people I know through religion or faith | + | Seeking social interaction with others | Faith and spirituality |
| 45) I spend time at a community-based or AIDS service organization, either to volunteer or access their services | + | Seeking social interaction with others | − |
| 46) I seek the company of others living with HIV (outside of organizations) | + | Seeking social interaction with others | − |
| 47) I spend time interacting with others on the Internet (eg, Facebook, Twitter, Chat Rooms) | + | Seeking social interaction with others | − |
| 48) I seek the company of others by attending dinner parties or going out to restaurants | + | Seeking social interaction with others | − |
| 49) I access a support group (online, by telephone, or in person) | + | Seeking social interaction with others | − |
| 50) I isolate myself from others | − | Seeking social interaction with others | − |
| 51) I try to reduce or eliminate relationships or activities that I believe are harmful to me | + | Seeking social interaction with others | − |

* (+) indicates positive living strategy; (−), negative living strategy; (+/−) strategy conceptualized as positive or negative depending on the context; - no additional subcategory of intrinsic factor. n = 935.

### Living Strategies across Age Groups

Table 3 displays the frequency of living strategies used most or all of the time by respondents across the age groups. Thirteen (25%) of the 51 living strategies were used by the majority of respondents (≥50%) most or all of the time across 3 main positive living strategies associated with maintaining a sense of control, including (1) healthy lifestyle strategies which included getting enough sleep, eating healthy, brushing teeth...
Table 2. Characteristics of Respondents by Age-Group.\textsuperscript{a}

| Characteristic                                      | Total Responses, N = 935 | N of Group (%) | N = 247, <40 Years, Median (IQR) | N = 283, 40-49 Years, Median (IQR) | N = 405, 50+, Years, Median (IQR) | P Value |
|----------------------------------------------------|--------------------------|----------------|----------------------------------|-----------------------------------|----------------------------------|---------|
| **Gender**                                         |                          |                |                                  |                                   |                                  |         |
| Man                                                | 737 (79.4)               | 172 (18.5)     | 218 (23.5)                       | 347 (37.4)                        | <.01                             |         |
| Woman                                              | 157 (17)                 | 52 (5.6)       | 56 (6.0)                         | 49 (5.3)                          |                                  |         |
| Other\textsuperscript{b}                           | 34 (3.7)                 | 20 (2.2)       | 6 (0.7)                          | 8 (0.9)                           |                                  |         |
| **Median age in years (IQR)**                      | 48 (38-54)               | 33 (28-36)     | 45 (43-48)                       | 55 (52-60)                        | <.01                             |         |
| **Median year of diagnosis (IQR)**                 | 2000 (1993-2007)         | 2008 (2003-2011)| 2000 (1994-2005)                | 1995 (1989-2003)                 | <.01                             |         |
| Currently taking antiretroviral therapy             |                          |                |                                  |                                   |                                  |         |
| Undetectable viral load\textsuperscript{c}         | 570 (65.4)               | 228; 105 (12.0)| 265; 161 (18.5)                  | 379; 304 (34.9)                   | <.01                             |         |
| Geographical region                                 |                          |                |                                  |                                   |                                  |         |
| Atlantic region (NS, Nfld, NB, PEI)                 | 46 (4.9)                 | 12 (1.3)       | 10 (1.1)                         | 24 (2.6)                          | .01                              |         |
| Quebec; Nunavut                                     | 57 (6.1)                 | 14 (1.5)       | 17 (1.8)                         | 26 (2.8)                          |                                  |         |
| Ontario                                             | 669 (71.7)               | 185 (19.8)     | 215 (23.0)                       | 269 (28.8)                        |                                  |         |
| Prairies (Saskatchewan; Alberta, Manitoba)         | 25 (2.7)                 | 10 (1.1)       | 8 (0.9)                          | 7 (0.8)                           |                                  |         |
| British Columbia                                    | 136 (14.6)               | 25 (2.7)       | 33 (3.5)                         | 78 (8.4)                          |                                  |         |
| Ethnocultural background                            | 624 (67.9)               | 134 (14.6)     | 172 (18.7)                       | 318 (34.6)                        | <.01                             |         |
| Caucasian white                                     | 76 (8.3)                 | 32 (3.5)       | 27 (2.9)                         | 17 (1.8)                          |                                  |         |
| Black or African                                    | 54 (5.9)                 | 13 (1.4)       | 19 (2.1)                         | 22 (2.4)                          |                                  |         |
| Indigenous                                          | 25 (2.7)                 | 14 (1.5)       | 7 (0.8)                          | 4 (0.4)                           |                                  |         |
| Asian                                               | 34 (3.7)                 | 11 (1.2)       | 14 (1.5)                         | 9 (1.0)                           |                                  |         |
| Latin American, Hispanic, or Latino                |                          |                |                                  |                                   |                                  |         |
| Mediterranean                                       | 16 (1.7)                 | 4 (0.4)        | 8 (0.9)                          | 4 (0.4)                           |                                  |         |
| Other\textsuperscript{d}                            | 59 (6.4)                 | 18 (2.0)       | 25 (2.7)                         | 16 (1.7)                          |                                  |         |
| Prefer not to answer                                | 31 (3.4)                 | 15 (1.6)       | 8 (0.9)                          | 8 (0.9)                           |                                  |         |
| Sexual orientation                                  | 569 (61.2)               | 131 (14.1)     | 170 (18.3)                       | 268 (28.8)                        | <.01                             |         |
| Gay                                                | 226 (24.3)               | 64 (6.9)       | 68 (7.3)                         | 94 (10.1)                         |                                  |         |
| Bisexual                                           | 82 (8.8)                 | 35 (3.7)       | 21 (2.3)                         | 26 (2.8)                          |                                  |         |
| Other\textsuperscript{e}                            | 52 (5.6)                 | 16 (1.7)       | 20 (2.2)                         | 16 (1.7)                          |                                  |         |
| Employment status                                   | 240                      | 282            | 398                              | <.01                             |                                  |         |
| Working for pay (FT or PT)                          | 348 (37.8)               | 130 (14.1)     | 125 (13.6)                       | 93 (10.1)                         |                                  |         |
| Volunteering, student, or retired                   | 152 (16.5)               | 27 (2.9)       | 18 (2.0)                         | 107 (11.6)                        |                                  |         |
| On disability income support                        | 336 (36.5)               | 60 (6.5)       | 112 (12.2)                       | 164 (17.8)                        |                                  |         |
| Unemployed or other                                 | 84 (9.1)                 | 23 (2.5)       | 27 (3.0)                         | 34 (3.7)                          |                                  |         |
| Education                                           | 240                      | 281            | 399                              | <.01                             |                                  |         |
| No formal education or less than grade 9            | 38 (4.1)                 | 13 (1.4)       | 8 (0.9)                          | 17 (1.9)                          |                                  |         |
| Some or completed high school                       | 183 (19.9)               | 56 (6.1)       | 53 (5.8)                         | 74 (8.0)                          |                                  |         |
| Some or completed trade/technical training          | 88 (9.6)                 | 21 (2.3)       | 30 (3.3)                         | 37 (4.0)                          |                                  |         |
| Some/completed college                              | 271 (29.5)               | 73 (8.0)       | 96 (10.4)                        | 102 (11.1)                        |                                  |         |
| Some/completed university                           | 237 (25.8)               | 65 (7.1)       | 64 (7.0)                         | 108 (11.7)                        |                                  |         |
| Marital status                                      | 930                      | 245            | 280                              | 405                               | <.01                             |         |
| Married/common law/relationship                     | 275 (29.6)               | 67 (7.2)       | 78 (8.4)                         | 139 (14.0)                        |                                  |         |

(continues)
and practicing good dental care, avoiding people or things that stress them out, and taking medications as discussed by their doctor; (2) maintaining health as a focus and purpose in life which included focusing on maintaining good health, focusing on work, friends, and activities, and managing finances; and (3) adopting positive attitudes and beliefs such as considering self-healthy living with HIV, accepting and valuing oneself, having a positive outlook on life, accepting that health can fluctuate, and choosing to believe one can survive and overcome any challenges living with HIV (Table 3). Among respondents who engaged in any of the first 41 living strategies and remaining 10 social interaction strategies, 40% and 65% felt they helped minimize or prevent the health challenges of living with HIV, respectively.

Proportions of respondents who engaged in living strategies “most (few times a week)” or “all the time (everyday)” differed across age groups for 29 (57%) of the 51 living strategies (Table 3). Of these strategies, a higher proportion of older adults (≥50 years) engaged most or all the time in the majority (20/29; 69%) of the strategies compared to the other age groups, all of which were perceived as having a positive influence on health (Table 3).

### Comparing Respondents ≥50 Years or Older with Those <40 Years

Compared to respondents 50 years of age, a significantly higher proportion of respondents aged 50 and older made sure they ate healthy (73% versus 62% [40-49 years] versus 56% [<40 years]), took medications as discussed with their doctor (96% versus 91% [40-49 years] versus 86% [<40 years]) [lifestyle], focused on maintaining their health living with HIV (64% versus 48% [40-49 years] versus 47% [<40 years]) [maintaining focus], planned ahead at work or in daily routine for possible changes in health such as good days and bad days (38% versus 28% [<40 years] versus 26% [40-49 years]) [planning for and anticipating the future], prioritized and tried not to overdo it when it came to their daily activities (49% versus 41% [40-49 years] versus 38% [<40 years]) [life balance], accepted and valued who they were the good and the bad (68% versus 56% [40-49 years] versus 50% [<40 years]), and had a positive outlook on life and used hope and optimism to live with HIV (63% versus 52% [40-49 years] versus 44% [<40 years]) [positive outlook] most or all the time (Table 3; all P < .01).

## Table 2. (continued)

| Separated/divorced or widowed/don’t know | Total Responses N = 935 | N of Group (%) | n = 247, <40 Years, n (%) or Median (IQR) | n = 283, 40-49 Years, n (%) or Median (IQR) | n = 405, ≥50, Years, n (%) or Median (IQR) | P Value |
|-----------------------------------------|-------------------------|----------------|--------------------------------------|-------------------------------------|-------------------------------------|-------|
| Single                                  | 142 (15.3)              | 22 (2.4)       | 38 (4.1)                             | 82 (8.8)                            |                                     |       |
| General health status                   | 932                     | 246            | 281                                  | 405                                 |                                     | <.01  |
| Excellent/very good                    | 420 (45.1)              | 131 (14.1)     | 133 (14.3)                           | 156 (16.7)                          |                                     |       |
| Good                                    | 337 (36.2)              | 77 (8.3)       | 98 (10.5)                            | 162 (17.4)                          |                                     |       |
| Fair or poor                            | 175 (18.8)              | 38 (4.1)       | 50 (5.4)                             | 87 (9.3)                            |                                     |       |
| Lives alone                             | 838                     | 227            | 244                                  | 367                                 |                                     | <.01  |
|                                         | 506 (60.4)              | 113 (13.5)     | 156 (18.6)                           | 237 (28.3)                          |                                     |       |

Abbreviations: FT, full-time; IQR, interquartile range; NB, New Brunswick; Nfld, Newfoundland and Labrador; NS, Nova Scotia; PEI, Prince Edward Island; PT, part-time.

*N = 935. Undetectable viral load: proportion reflects undetectable status of entire sample regardless of antiretroviral medication use among those who were able to recall their most recent viral load. Characteristics are based on responses to self-reported questions on demographic and disease characteristics in the survey instrument.

Other: transman to woman, transwoman to man, or 2-spirited.

Undetectable viral load defined as respondents indicating their viral load was “undetectable” or any value fewer than 50 copies of HIV per mL of blood (<50 copies/mL).

Other: Chinese, Filipino, Arab, Korean, Japanese, multiple backgrounds.

Other: Queer, 2-spirit, questioning, asexual, trisexual.
Table 3. Living Strategies Used Most (Few Times a Week) or All of the Time (Everyday) Across Age Groups of Respondents Living with HIV. a

| Living strategies: Maintaining sense of control |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------|---|---|---|---|---|---|---|---|---|
| In the Past Month, Engaged in the | <40 Years, n = 247 | 40-49 Years, n = 283 | ≥50 Years, n = 405 | χ² | Tukey Adjusted P Value | Tukey Adjusted P Value | Tukey Adjusted P Value | 40-49 Years | ≥50 Years |
| Following Strategies Most (Few Times a Week) or All of the Time (Everyday), n = 935 | (%) | (%) | (%) | (of Sample) | (%) | (%) | (%) | (%) | (%) |
| Lifestyle | 1) I make sure I get enough sleep | 566 (60%) | 130 (53%) | 166 (59%) | 270 (67%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 2) I take a break or nap when I need to | 414 (44%) | 97 (39%) | 119 (42%) | 198 (49%) | <.01 e | .67 | <.01 e | .17 |
| | 3) I make sure I eat healthy | 611 (65%) | 139 (56%) | 177 (62%) | 295 (73%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 4) I brush my teeth and practice good dental care | 706 (76%) | 160 (65%) | 208 (74%) | 338 (84%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 5) I exercise | 348 (37%) | 90 (36%) | 93 (33%) | 165 (41%) | .10 | - | - | - |
| | 6) I take medications as discussed with my doctor (out of n = 915) | 839 (92%) | 199 (86%) | 256 (91%) | 384 (96%) | <.01 e | .17 | <.01 e | <.01 e |
| | 7) I try to avoid people or things that stress me out | 472 (50%) | 107 (43%) | 140 (50%) | 225 (56%) | .17 | <.01 e | <.01 e | .17 |
| | 8) I smoke cigarettes (–) | 284 (30%) | 71 (29%) | 88 (31%) | 125 (31%) | .81 | - | - | - |
| Maintaining focus/establishing purpose | 9) I focus on a hobby | 257 (28%) | 81 (33%) | 69 (24%) | 107 (26%) | .08 | - | - | - |
| | 10) I focus on maintaining my health living with HIV | 509 (54%) | 115 (47%) | 137 (48%) | 257 (64%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 11) I focus on things such as work, friends, and activities because HIV is not my main focus in life | 492 (53%) | 118 (48%) | 152 (54%) | 222 (55%) | .20 | - | - | - |
| | 12) I make HIV the main focus of my life (±/–) | 122 (13%) | 46 (19%) | 39 (14%) | 37 (9%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 13) I make maintaining my health the main focus of my life | 418 (45%) | 96 (39%) | 121 (43%) | 201 (50%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 14) I am involved in volunteerism, activism or advocacy related to HIV | 192 (20%) | 44 (18%) | 56 (20%) | 92 (23%) | .30 | - | - | - |
| | 15) I engage in activities of artistic expression | 181 (19%) | 48 (19%) | 53 (19%) | 80 (20%) | .94 | - | - | - |
| | 16) I try to manage my finances | 527 (56%) | 107 (43%) | 157 (56%) | 263 (65%) | <.01 e | <.01 e | <.01 e | <.01 e |
| Maintaining life balance | 17) I maintain a good balance or activity in my life | 372 (40%) | 96 (39%) | 92 (32%) | 184 (45%) | <.01 e | <.01 e | <.01 e | <.01 e |
| | 18) I try to stick to a daily structure or routine | 434 (46%) | 118 (48%) | 116 (41%) | 200 (49%) | .08 | - | - | - |
| | 19) I prioritize and try not to “overdo it” when it comes to my daily activities | 409 (44%) | 93 (38%) | 116 (41%) | 200 (49%) | <.01 e | .67 | <.01 e | <.01 e |
| | 20) I tend to overdo it by working or volunteering long hours (–) | 151 (16%) | 43 (17%) | 44 (16%) | 64 (16%) | .82 | - | - | - |
| Planning for and anticipating the future | 21) I plan for and anticipate possible changes in my health | 345 (37%) | 89 (36%) | 86 (30%) | 170 (42%) | <.01 e | .50 | .40 | .01 e |
| | 22) I plan ahead at work or in my daily routine for possible changes in my health such as good days and bad days | 298 (32%) | 70 (28%) | 75 (26%) | 153 (38%) | <.01 e | .83 | <.01 e | <.01 e |

(continued)
| In the Past Month, Engaged in the Following Strategies Most (Few Times a Week) or All of the Time (Everyday), n = 935 | <40 Years, (26% of Sample),a (%) | 40-49 Years, (30% of Sample),b (%) | ≥50 Years, (43% of Sample),b (%) | χ² P Value | Tukey Adjusted P Value 40-49 Years | Tukey Adjusted P Value <40 versus ≥50 Years | Tukey Adjusted P Value ≥50 Years versus 40-49 Years |
|---|---|---|---|---|---|---|---|
| 23) I make “to-do” lists to help me keep on track with my daily routine | 343 (37%) | 85 (34%) | 98 (35%) | 160 (40%) | .29 | - | - |
| 24) I learn what I can about HIV so that I am informed about my illness | 367 (39%) | 81 (33%)c | 110 (39%) | 176 (44%)c | .03e | .33 | <.01e | .67 |
| Paying attention to the numbers | 382 (40%) | 91 (37%) | 120 (42%) | 171 (42%) | .33 | - | - |
| 25) I pay attention to “the numbers” (viral load, CD4 count) as a way to keep on top of my health | 123 (13%)b,c | 34 (12%)b | 38 (9%)c | <.01e | <.01e | <.01e | .50 |
| Living strategies: Attitudes and beliefs | | | | | | | | |
| Positive outlook | | | | | | | | |
| 27) I consider myself healthy living with HIV | 562 (60%) | 129 (52%)b,c | 166 (59%)b,d | 267 (66%)c,d | <.01e | <.01e | <.01e | <.01e |
| 28) I accept and value who I am; good and bad | 559 (60%) | 123 (50%)c | 160 (56%)d | 276 (68%)c,d | <.01e | .17 | <.01e | <.01e |
| 29) I have a positive outlook on life and use hope and optimism to live with HIV | 512 (55%) | 110 (44%)c | 148 (52%)d | 254 (63%)c,d | <.01e | .17 | <.01e | <.01e |
| 30) I accept that my health can fluctuate with “good days” and “bad days” living with HIV | 566 (61%) | 119 (48%)b,c | 163 (58%)b,d | 284 (70%)c,d | <.01e | <.01e | <.01e | <.01e |
| 31) I choose to believe I can survive and overcome any challenges living with HIV | 468 (50%) | 108 (44%)c | 133 (47%) | 227 (56%)c | <.01e | 1.00 | .01e | .06 |
| 32) I get upset if I don’t get to everything I set out to do in a day (−) | 198 (21%) | 61 (25%) | 59 (21%) | 78 (19%) | .25 | - | - |
| 33) I feel hopeless living with HIV (−) | 152 (16%) | 53 (22%)c | 46 (16%) | 54 (13%)c | .02e | .33 | <.01e | .50 |
| Faith and spirituality | | | | | | | | |
| 34) I draw on faith and spirituality to deal with my challenges living with HIV | 206 (22%) | 38 (15%)c | 68 (24%) | 100 (25%)c | .01e | .04 | .01e | 1.00 |
| Living strategies: Blocking HIV out of the mind | | | | | | | | |
| 35) I ignore my HIV status (−) | 134 (14%) | 45 (18%) | 35 (12%) | 54 (13%) | .12 | - | - |
| 36) I ignore my ‘numbers’ (CD4 count and viral load) living with HIV (−) | 137 (15%) | 39 (16%) | 43 (15%) | 55 (14%) | .71 | - | - |
| 37) I drink alcohol as an escape to forget the challenges living with HIV (−) | 102 (11%) | 28 (11%) | 27 (10%) | 47 (12%) | .67 | - | - |
| 38) I try to forget I’m living with HIV (+/−) | 261 (28%) | 69 (28%) | 79 (28%) | 113 (28%) | 1.00 | - | - |
| 39) I use drugs recreationally to forget the challenges living with HIV (+/−) | 108 (12%) | 34 (14%) | 30 (11%) | 44 (11%) | .44 | - | - |
| 40) I use sex as a way to forget the challenges of living with HIV (+/−) | 61 (6%) | 30 (12%)c | 24 (8%)d | 7 (2%)c,d | <.01e | .17 | <.01e | <.01e |

(continued)
Table 3. (continued)

| In the Past Month, Engaged in the Following Strategies Most (Few Times a Week) or All of the Time (Everyday), n = 935 | <40 Years, n = 247 (26% of Sample), a (%) | 40-49 Years, n = 283 (30% of Sample), b (%) | ≥50 Years, n = 405 (43% of Sample), b (%) | Unknown | Tukey Adjusted P Value | Tukey Adjusted P Value | Tukey Adjusted P Value |
|---|---|---|---|---|---|---|---|
| 41) I go shopping to forget the challenges living with HIV (+/−) | 80 (9%) | 39 (16%) b,c | 20 (7%) c | 21 (5%) c | <.01 a | <.01 a | <.01 a |
| Living strategies: Social interaction f | | | | | | | |
| 42) I spend time with my friends, partner, extended chosen or biological family, or pets (n = 914; not applicable: n = 21) | 397 (43%) | 108 (44%) | 112 (40%) | 177 (45%) | .48 | - | - |
| 43) I spend time with work (or volunteer) colleagues (n = 809; not applicable: n = 126) | 178 (22%) | 61 (27%) | 52 (20%) | 65 (20%) | .10 | - | - |
| 44) I spend time with people I know through religion or faith (n = 759; not applicable: n = 176) | 72 (10%) | 30 (14%) b,c | 16 (7%) b | 26 (8%) b | .02 a | <.01 a | <.01 a |
| 45) I spend time at a community-based or AIDS service organization, either to volunteer or access their services (n = 891; not applicable: n = 44) | 164 (18%) | 42 (18%) | 44 (16%) | 78 (20%) | .44 | - | - |
| 46) I seek the company of others living with HIV (outside of organizations) (n = 900; not applicable: n = 35) | 138 (15%) | 45 (19%) | 39 (14%) | 54 (14%) | .22 | - | - |
| 47) I spend time interacting with others on the internet (eg, Facebook, Twitter, chat rooms) (n = 907; not applicable: n = 28) | 287 (32%) | 103 (43%) b,c | 82 (30%) b | 102 (26%) c | <.01 a | <.01 a | <.01 a |
| 48) I seek the company of others by attending dinner parties or going out to restaurants (n = 906; not applicable: n = 29) | 89 (10%) | 38 (16%) b,c | 26 (10%) b | 25 (6%) c | <.01 a | <.01 a | <.01 a |
| 49) I access a support group (either online, by telephone or in person) (n = 883; not applicable: n = 52) | 83 (9%) | 37 (16%) b,c | 21 (8%) b | 25 (6%) c | <.01 a | <.01 a | <.01 a |
| 50) I isolate myself from others (n = 911; not applicable: n = 24) | 240 (26%) | 62 (26%) | 81 (29%) | 97 (25%) | .40 | - | - |
| 51) I try to reduce or eliminate relationships or activities that I believe are harmful to me (n = 888; not applicable: n = 47) | 373 (42%) | 84 (36%) | 115 (43%) | 174 (45%) | .08 | - | - |

a(+/−) indicates strategies conceptualized by the Episodic Disability Framework that may have a negative influence on health (negative strategies); (+/−), either positive or negative influence on health. N = 936. Bolded indicates age groups with statistically significant highest proportion who engaged in a given strategy “most” or “all the time.”

b<40 years versus 40-49 years.

c<40 years versus ≥50 years.

d40-49 years versus ≥50 years.

eP value (unadjusted and adjusted) <.05; column percentage used to compare differences among age groups. Percentages may not add to 100% due to rounding.

Social interaction strategies was a separate section in the survey instrument whereby for each item there was a “not applicable” response option, hence the denominator changed for each item.
practiced good dental care (84% [50 and older] versus 74% [40-49 years] versus 65% [<40 years]) [lifestyle], managed their finances (65% [50 and older] versus 56% [40-49 years] versus 43% [<40 years]) [maintaining focus and control], considered themselves healthy living with HIV (66% [50 and older] versus 59% [40-49 years] versus 52% [<40 years]), and accepted that their health can fluctuate with good days and bad days living with HIV (70% [50 and older] versus 58% [40-49 years] versus 48% [<40 years]) [positive outlook] most or all of the time. Compared to respondents aged 40 to 49 years, a significantly higher proportion of respondents aged 50 and older planned for and anticipated possible changes in their health (42% versus 30%; \(P = .01\)) [planning for and anticipating the future] most or all of the time. Similarly, compared to this same age-group (40-49 years), a significantly higher proportion of respondents <40 years of age and even higher proportion of respondents 50 and older maintained a good balance of activity in their life (45% [50 and older] versus 39% [<40 years] versus 32% [40-49 years], \(P < .01\)) [lifestyle] most or all of the time.

### Comparing Respondents \(\geq 40\) Years to Those <40 Years

Compared to respondents \(\geq 40\) years, a significantly higher proportion of younger respondents (<40 years) used websites or applications to track their health details (21% versus 12% [40-49 years] versus 9% [50 and older]) [attention to numbers], spent time interacting with others on the Internet (43% versus 30% [40-49 years] versus 26% [50 and older]), sought the company of others (16% versus 10% [40-29 years] versus 6% [<40 years]), accessed a support group (online, by telephone, or in person; 16% versus 8% [40-49 years] versus 6% [50 and older]), and spent time with people they knew through religion or faith (14% versus 7% [40-49 years] versus 8% [50 and older]) [seeking social interaction] most or all of the time (Table 3, all \(P < .01\)).

### Differences for Living Strategies Perceived as Negatively Influencing Health

Of note, a higher proportion of younger respondents engaged in 9 of the living strategies, 4 of which were perceived as having potentially negative influences on health. Compared to respondents \(\geq 50\) years, a significantly higher proportion of younger respondents (<40 years) felt hopeless living with HIV (22% [<40 years] versus 3% [50 and older]) [negative outlook], and significantly higher proportion of younger respondents (<50 years) made HIV the main focus of their life (19% [40-49 years] versus 14% [40-49 years] versus 9% [50 and older]) [focus in life], went shopping to forget the challenges living with HIV (16% [<40 years] versus 7% [40-49 years] versus 5% [50 and older]) and used sex as a way to forget the challenges of living with HIV (12% [<40 years] versus 8% [40-49 years] versus 2% [50 and older]) [blocking HIV out of the mind] most or all of the time (Table 3, all \(P < .01\)).

### Discussion

Canadian adults living with HIV in this study reported engaging in a variety of living strategies to deal with their health challenges. Of the 51 strategies, 13 (25%) were used frequently (most or all of the time) by the majority of all respondents and ranged from 50% avoiding what they perceive as stressful events or people, and choosing one can overcome challenges with HIV, to 92% taking medications as prescribed by their physician. All of these strategies were most frequently used by those 50 years or older, and all were perceived to have positive influences on health.

### Living Strategies Analogous to Coping

Living strategies in our study may be considered analogous to concepts commonly described in the literature including coping (similar to positive outlook), mastery (maintaining sense of control), and social support (seeking social interaction), all of which are important for dealing with stressors and challenges living with HIV. Lazarus and Folkman described the interrelationship between stress, health, and coping, and the way in which a stressor might be experienced and evaluated by an individual will determine how he or she will go about responding to it. For people living with HIV, positive refocusing, positive reappraisal, putting situations into perspective, and adjusting goals to be more realistic and attainable were associated with fewer symptoms of anxiety and depression.

Higher mastery scores were associated with having greater control in life and lower feelings of hopelessness, enabling individuals to mitigate mental health challenges and stressors living with HIV. Rodkjaer and colleagues found that coping self-efficacy and the ability to positively disclose HIV status were associated with reduced depressive symptoms among adults living with HIV. Finally, engaging in positive networks and social support, acquiring knowledge and understanding of HIV, selective disclosure of HIV status, and building confidence with employment were considered positive coping strategies for dealing with HIV-related stigma.

Our work offers a way to reframe traditional conceptualizations of coping to acknowledge positive and negative elements in any strategy on health and well-being. Despite the variations in terminology, a wealth of literature suggests the importance of considering multidimensional approaches to coping (and living) strategies for addressing mental and social health stressors for adults at any age with HIV.

### Older Respondents Employed Some Living Strategies More Often

Results from our study suggest that older adults more frequently engage than younger adults in some living strategies related to maintaining a sense of control and positive outlook on life. Authors of a qualitative study highlighted the importance of accessing support, helping oneself and others, adopting spirituality, and engaging in active meaning-based
strategies as ways to cope with HIV stressors, comorbidity, stigma, and financial insecurity among community-dwelling older adults living with HIV. Similar strategies were documented among older adults for dealing with disability aging with HIV, such as keeping a positive attitude, maintaining sense of control, choosing social interactions, and focusing on other aspects of life beyond HIV status. Drawing on faith and spirituality was documented as a frequent strategy among 25% of older adults in our sample. This approach was supported by Emlet and colleagues who demonstrated the role of spirituality among older adults aging with HIV, specifically to face the adversity that comes from long-term survivorship, to make connections with others, to harbor feelings of gratitude, and to learn new skills as one ages with HIV.

A greater proportion of older adults living with HIV reported engaging most or all the time in some living strategies associated with maintaining sense of control and adopting positive attitudes and beliefs, whereas a greater proportion of younger participants (<40 years) reported frequently engaging in social interaction strategies online (eg, Facebook, Twitter, chat rooms) and reaching out to others, particularly involving the Internet. The Internet and particularly the use of dating sites are mechanisms for social networking among young gay men. However, people living with HIV of all ages are using social networking sites more readily. Differences in social interaction across age groups may reflect “social pruning,” a concept reported among older adults living with HIV that involves removing nonsupportive relationships, and those that might be stressful, highlighting the importance of quality of social relationships over quantity as adults age with HIV. Nevertheless, online strategies may become increasingly important, as older adults are more likely to live alone and are at risk of social isolation compared to younger adults living with HIV <40 years of age.

Older adults in our study were living with a greater number of concurrent health conditions compared to younger respondents, and they engaged in positive living strategies more frequently. Older adults diagnosed with HIV prior to the era of combination ART may be living with distinct challenges associated with chronic inflammation of HIV, long-term ARV medication use, and long-standing persistent sequelae from opportunistic infections and adverse effects from earlier medications (eg, peripheral neuropathy). Further evidence from the Research on Older Adults with HIV (ROAH) study indicated that older adults living with HIV were living with a greater number of concurrent health challenges, depression, loneliness, and HIV-related stigma. Older men and women have experienced the loss of friends and loved ones to HIV, resulting in their status as long-term survivors who have overcome adversity living in the pre-cART era. Someone living with HIV for 20 years or more may utilize living strategies more often compared to their younger counterparts because of having more experience with HIV. Simply aging with HIV itself may be considered an accomplishment and predispose older adults and long-term survivors to adopt strategies such as optimism, self-esteem, and life satisfaction as a way to positively influence health and well-being. Results reflect the greater prevalence of multimorbidity, stigma, ageism, and loneliness documented among older adults with HIV, suggesting a potentially greater need, and greater ability, to acquire strategies to deal with adversity and overcome the long-standing, health-related challenges with HIV. Nevertheless, we did not find that living strategies were correlated with length of time since diagnosis (data not shown), suggesting that reasons for the uptake of living strategies likely are multifactorial, dependent on a combination of personal and environmental factors. The effect of living strategies on health and disability outcomes for adults aging with HIV, while beyond the scope of this article, is an important phase of future research.

Living Strategies and Resiliency

Some of the positive outlook living strategies utilized more frequently by older adults in our study, such as envisioning oneself as healthy with HIV, accepting and valuing oneself, having a positive outlook on life, accepting that health can fluctuate, and choosing to believe one can survive and overcome challenges with HIV, may be considered analogous to concepts of resilience, hardness, mastery, or coping. Resilience can be defined as adapting well and/or overcoming adversity, hardships or significant sources of stress, and the ability to “bounce back” from difficult experiences faced in life. Resilience has been shown to mediate the relationship between life stress and physical, emotional, and functional well-being among older adults living with HIV. Positive reframing, positive perceptions of social relationships, and cognitive health were associated with high resilience among adults with HIV. Emlet and colleagues used qualitative approaches to profile strength and resilience and found the majority of adults 50 years and older expressed themes related to self-acceptance, optimism, relationships with others, self-management, and independence, whereas Furlotte and Schwartz reported resilience as reducing the space HIV takes up in one’s life, lifestyle changes to accommodate living with HIV, and engaging in social support, concepts similarly expressed by the older adults in our sample.

Resilience and mastery were shown to be associated with health-related quality of life, social support, and community engagement among a sample of older gay and bisexual men living with HIV. Emlet and colleagues conducted a qualitative study in 58 older adults with HIV who recognized both positives and negatives of their life circumstances and developed resiliency by overcoming personal and illness adversity and establishing mastery related to health, stigma, and personal trauma, which can be facilitated by social support. Hence, resilience, which appears related to positive outlook and hope and optimism in our study, is an trait that can be learned and developed by considering the determinants of resilience along with personal behaviors and the environment where people age with HIV. Further considerations of the structural, social, and individual determinants of health are important to consider for
modeling resiliency with different aging sex- and gender-based populations. Results suggest the role for interventions aimed at enhancing resilience using the above mentioned strategies as a way to potentially enhance quality of life for adults aging with HIV. Collectively, the living strategies exhibited by respondents in our sample may help to inform self-management interventions to help people living with HIV deal with and overcome the challenges of living with a chronic and episodic illness.

We found only 1 negative strategy with significant differences between age groups. Of the 16% of respondents overall who reported feeling hopeless living with HIV most or all the time, this strategy was reported by a higher proportion of respondents <40 years (22%) compared to those 50 and older (3%). While evidence suggests that older adults may be more likely to experience mental health challenges, social isolation, and stigma compared to younger counterparts, our results suggest strategies for emotional health coping remain critical for those of all ages with HIV.

Thirty percent of all the respondents reported smoking cigarettes most or all the time. Hence, while the majority of respondents engaged in positive strategies and avoided those with potentially negative health consequences, a role persists for health practitioners in addressing smoking cessation with people living with HIV.

Limitations

Our study is not without limitations. Respondents in this study represent a convenience sample largely recruited from community-based service organizations. The majority of the self-selected participants were gay men, Caucasian, living in urban centers in Ontario, Canada, and not employed; hence, results do not represent the general population of Canadians living with HIV. Because the majority were recruited from community-based service organizations, respondents may have had increased access to supportive services and social networks living with HIV. We did not conduct a gender-based analysis among the age groups. With only 17% of women in our sample, 5% of which were ≥50 years, our findings cannot be interpreted as representative of the estimated 22% of women living with HIV in Canada. Further work is needed to examine the nature and extent of living strategy use specifically among women living with HIV. Future work may also explore frequency of living strategy use based on ethnocultural background, sexual orientation, and viral suppression. Second, given this is a newly emerging concept in the context of HIV, the living strategies component of the survey instrument was not a validated questionnaire. Nevertheless, the 51 items were derived from the Episodic Disability Framework, pilot tested by adults living with HIV, and determined to have face, content validity, and ease of usage with adults living with HIV. Furthermore, without a validated domain structure, we reported data based on the individual items and used the Episodic Disability Framework to inform our interpretation. Future research may include an exploratory factor analysis to establish a domain structure and assess the measurement properties in order to establish a living strategies questionnaire for people living with HIV. Our classification of whether a strategy might positively or negatively influence health was based on the Episodic Disability Framework with known validity and reliability; nevertheless, we recognize that strategies utilized by people living with HIV and their influence on health may differ depending on the individual and the context. Next, by classifying the oldest age-group ≥50 years, our analysis does not account for differences that may occur beyond those ≥50 years of age (96 participants were 60-69 years and 15 participants ≥70 years). Post hoc analyses (results not shown) suggest that older adults ≥60 years of age may be responsible for differences among older adults engaging most or all the time for some outcomes of lifestyle strategies (eating healthy, dental hygiene, and avoiding people or things that stress someone out), planning for and anticipating the future, prioritizing and not overdoing it, and maintaining a positive outlook. As a greater number of adults age with HIV, it will be increasingly important to further consider strategies used by adults ≥60 and ≥70 years of age for successful aging with HIV. Our dichotomization of frequency of living strategy was done to help interpretation of findings. However, this may underestimate the variation in frequency of living strategy use within each group, for example, exercising some of the time may have different clinical implications from exercising none of the time. Future property assessment may include consideration of frequency of living strategies use as a continuous variable. Qualitative inquiry may help to interpret what it means for older adults who engage in a given strategy more often than younger adults living with HIV. Finally, our analysis was exploratory in nature; while the majority of respondents reported that engaging the living strategies helped minimize or prevent health-related challenges living with HIV, intervention studies to determine effects of specific strategies on reducing disability and enhancing health for people living with HIV and strategies for increasing the use of beneficial living strategies warrant further study. Nevertheless, researchers and health-care professionals might consider these strategies as a mechanism in which to inform self-management interventions living with HIV.

Conclusion

A greater proportion of older adults living with HIV in this study reported engaging most, or all the time, in living strategies associated with maintaining sense of control and adopting positive attitudes and beliefs, whereas a higher proportion of younger participants engaged in strategies for social interaction. Positive living strategies have a role in addressing disability experienced by adults with HIV. The frequency of engaging in negative strategies appeared similar by older and younger respondents living with HIV. Future research may consider how these strategies relate to resilience with HIV and the role of interventions for enhancing successful aging among adults living with HIV. Clinicians and community
organizations may examine ways of integrating living strategies when providing services to persons living with HIV across age groups.

Authors’ Note
The HIV Health and Rehabilitation Survey (HHRS) Team includes a team of researchers, knowledge users, and collaborators in Canada and the United Kingdom, many of whom are part of the Canada-International HIV and Rehabilitation Research Collaborative (CIHRRC) (http://cihrrc.hivandrehab.ca/). HHRS Team Researchers: Kelly K. O’Brien (University of Toronto), Patricia Solomon (McMaster University), Francisco Ibáñez-Carrasco (Ontario HIV Treatment Network), Catherine Worthington (University of Victoria), Jacqueline Gaagahan (Dalhousie University), Stephanie Nixon (University of Toronto), Steven Hanna (McMaster University), Brenda Merritt (Dalhousie University). HHRS Team Knowledge Users: Tammy Yates, Stephen Tattle, Elisse Zack (Realize, formerly the Canadian Working Group on HIV and Rehabilitation [CWGHR]), Will Chegwidden (National Hospital for Neurology and Neurosurgery, University College Hospitals), Patric Gayle (Gay Men’s Health Collective [GMHC]), Three Flying Piglets, Larry Baxter (Community Member), Greg Robinson (Community Member), Tara Carnochan, Dawn James and Tammy Reimer (Nine Circles Community Health Centre), Rosalind Baltzer Turje and Patrick McDougall (Dr. Peter AIDS Foundation). HHRS Team Collaborators: Toronto PWA Foundation (Murray Jose-Boerbridge), Casey House (Soo Chan Carusone), Positive Living Society of British Columbia (Wayne Campbell and Adam Reibin), and AIDS Coalition of Nova Scotia (Liz Harrop-Archibald and Laura Toole).

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