Higher Prevalence of Mood and/or Anxiety Disorders among Individuals Vulnerable to Acquire HIV in Canada

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Background

- Mood and anxiety disorders are the most prevalent types of mental illnesses impacting not only Canadians, but individuals worldwide.
- Approximately 75% of mental health disorder-related healthcare services used by Canadians are for a mood and/or anxiety disorder.
- People living with HIV (PLWH) and/or individuals vulnerable to HIV acquisition are at increased risk for mood and anxiety disorders.
    - This association has also been shown to be bidirectional; individuals with mood and/or anxiety disorders are also more likely to engage in HIV risk behavior and acquire HIV
- Development of mental health disorders are known to be influenced by social, economic and physical surroundings.
- Our objective was to measure the association between vulnerability to HIV acquisition and diagnoses of mood and/or anxiety disorders in Canada from 2013 to 2014.
    - Secondarily, we sought to identify social determinants of health contributing to mood and/or anxiety disorder diagnoses.

Methods

- Data were obtained from the biannual 2013-2014 cycle of the Canadian Community Health Survey (CCHS), conducted by Statistics Canada
- The CCHS constitutes a cross-sectional national population health survey that collects information pertaining to health status, health care utilization and health determinants for the Canadian population.
    - The CCHS comprises of respondents aged 12 years and older living in private dwellings across the 110 health regions in Canada.
    - Note that all data utilized for this study represent self-reported information provided by respondents.
- Overall, 193,813 households were eligible and selected for the survey, with a total of 147,009 respondents.
    - The final survey sample consisted of 128,310 respondents, which is representative of 30,014,589 Canadians.
- The analytical sample for this study was restricted to respondents aged ≥18 years who provided valid responses (yes vs no) for the study outcome (i.e., mood/anxiety disorder diagnosis).
- The main outcome was having a mood and/or anxiety disorder diagnosed by a health professional (yes vs no). Respondents were told to report these disorders only if they were expected to last or have already lasted 6 months or more.
- Covariates included in the study are shown in Table 1. Respondents were classified as being vulnerable to acquire HIV if at least two of the following risk factors, selected on the basis of the scientific literature, were present:
    i. Age of first sexual intercourse <14 years
    ii. Regular alcohol consumption in the past 12 months
    iii. Failure to use a condom during the last sexual intercourse
    iv. Ever diagnosed with a sexually transmitted infection
    v. Had ≥ 4 sexual intercourse partners in the past 12 months
    vi. Had used ≥ 1 hard drug in the past 12 months (i.e., crack/cocaine, amphetamines, ecstasy, hallucinogens, and heroin).
- Univariable and multivariable logistic regression models were built to assess associations between covariates and our main outcome. Note that the household food security covariate was optional content to the CCHS 2013-14, thus not included for British Columbia, Manitoba, Newfoundland and Yukon. Two models are shown.

Results

- Our analytical weighted sample consisted of 12,624,669 Canadians. Of these, 5% of were identified as being vulnerable to HIV and 12% reported a mood and/or anxiety disorder diagnosis.
- Bivariable analysis found respondents classified as vulnerable to HIV acquisition were significantly associated with identifying as bisexual/homosexual, single marital status, less than post-secondary education, living in poverty, being food insecure, non-immigrant status, residing in Québec, in a rural area, having an inferior self-perceived health, having a weak sense of belonging to the community, lacking a regular medical doctor, being of younger age and having a higher short form depression score.
- Results from multivariable analyses are presented in Table 1.

Table 1. Final Multivariable Model for Mood/Anxiety Disorder Diagnosis: Canadian Community Health Survey: 2013-2014

Characteristic	Adjusted Odds Ratio Mood/Anxiety Disorders	
	Model (Excluding Food Security)	Model (Including Food Security)
Vulnerable (Yes)	1.87 (1.50 - 2.32)	1.70 (1.34 - 2.17)
Bisexual/Homosexual (Yes)	2.57 (2.01 - 3.29)	2.52 (1.88 - 3.37)
Sex (Female)	1.72 (1.53 - 1.93)	1.79 (1.57 - 2.04)
Marital Status		
Married/common-law	0.83 (0.73 - 0.94)	0.79 (0.67 - 0.93)
Widowed/separated/divorced	1.22 (0.99 - 1.49)	1.05 (0.81 - 1.36)
Education attainment	NS	NS
Poverty (Yes)	1.54 (1.18 - 2.01)	1.44 (1.07 - 1.95)
Household food security status (insecure)	NA	2.44 (2.05 - 2.91)
Cultural and racial origin (Non-Caucasian)	0.45 (0.34 - 0.60)	0.38 (0.27 - 0.53)
Immigrant (Yes)	0.75 (0.58 - 0.96)	0.78 (0.58 - 1.04)
Region		
Québec	0.62 (0.53 - 0.72)	0.62 (0.53 - 0.73)
British Columbia	1.10 (0.93 - 1.31)	NA
Atlantic	1.02 (0.88 - 1.19)	1.08 (0.91 - 1.27)
Prairies	0.76 (0.65 - 0.89)	0.77 (0.65 - 0.91)
Northern Territories	0.75 (0.54 - 1.03)	0.67 (0.40 - 1.12)
Urban-rural status (Rural)	0.81 (0.72 - 0.92)	0.82 (0.71 - 0.95)
Self-perceived general health		
Very good	2.22 (1.84 - 2.67)	2.15 (1.75 - 2.64)
Good	4.32 (3.56 - 5.25)	3.92 (3.16 - 4.87)
Fair	11.39 (8.98 - 14.44)	9.42 (7.23 - 12.27)
Poor	16.46 (11.85 - 22.86)	13.93 (9.17 - 21.15)
Sense of belonging to the community (Weak)	1.30 (1.17 - 1.45)	1.29 (1.14 - 1.46)
Regular medical doctor (No)	0.56 (0.48 - 0.66)	0.51 (0.43 - 0.62)
Depression Scale (per 1 unit)	1.42 (1.36 - 1.47)	1.39 (1.32 - 1.45)
Age (per 10 years)	NS	1.06 (0.98 - 1.15)

Note: The reference groups for covariates are as follows: Vulnerable (No); Bisexual/Homosexual (No); Sex (Male); Marital Status (Single); Poverty (No); Household food security status (Secure); Cultural and racial origin (Caucasian); Immigrant (No); Region (Ontario); Urban-rural status (Urban); Self-perceived general health (Excellent); Sense of belonging to the community (Strong); Regular medical doctor (Yes). NS = Not Selected; NA = Not Applicable.

Discussion

- The most significant modifiable factors associated with the outcome included vulnerability to HIV (>70% higher odds relative to those non-vulnerable) and food insecurity (144% increased odds relative to those with food security).
- Important non-modifiable factors associated with the aforementioned outcome consist of identifying as bisexual/homosexual (>152% higher odds relative to heterosexuals) and being female (>72% higher odds relative to males).
- Other influential factors included living in poverty, having a poor self-perceived general health, a weak sense of belonging to the community.
- Tailoring strategies to reduce vulnerability to HIV, reduce food insecurity, and meet the needs of particular social minority groups (e.g., bisexual/homosexuals, women, and non-Caucasians) are needed to decrease the prevalence of mood and/or anxiety disorders.

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