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Rates of All-Cause and Accident-specific Mortality among Schizophrenic people living with and without HIV

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On behalf of the Comparative Outcomes Service Utilization Trends (COAST) Cohort Study

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Background

- Despite significant advancements in antiretroviral therapy (ART) and improvements in life expectancy, people living with HIV (PLHIV), continue to be disproportionately affected by mental health concerns, including Schizophrenia (SZO).[1]
- SZO is a mental health condition that has important implications for morbidity and mortality outcomes, with research demonstrating that people living with Schizophrenia face increased mortality outcomes.[2]
- As of yet, few studies have explored the impact that HIV and SZO have on mortality, and what factors are driving increased mortality among PLHIV living with concurrent SZO (HIV+/SZO+).

Methods

- The Comparative Outcomes and Service Utilization Trends (COAST) study is a population-based retrospective cohort study examining health outcomes and service use of PLHIV and a random 10% of the general population identified through a unique linkage with Population Data BC's individual-level longitudinal administrative databases
- Prevalence of SZO diagnosis was identified and calculated from 1998 to 2013, through physician billing and hospital-based administrative data using International Classification of Disease 9/10 codes
- Age and sex-adjusted all-cause and accident specific mortality rates were calculated among HIV+/SZO+, HIV-/SZO+, HIV+/SZO-, and HIV-/SZO-
- Two confounding models assessed 1. the independent association between SZO and Mortality among people living with HIV, and 2. HIV status and mortality among all people living with SZO
- Independent correlates of mortality was assessed among HIV+/SZO+

Results

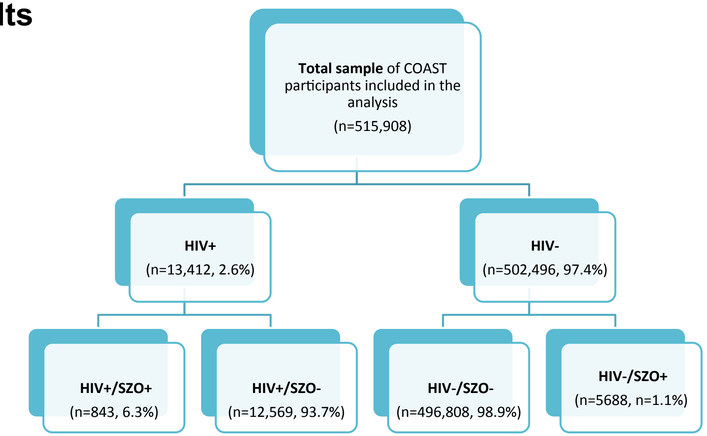

Figure 1- Flow chart of population study samples

Results Continued

Table 1- Socio-demographic and health service use differences between HIV+/SZO+ and HIV-/SZO+

Characteristics	HIV+/SZO+ n= 843	HIV-/SZO+ n=5688	P-value
Age at COAST baseline *median (Q1, Q3)*	37 (30-44)	36 (24-50)	0.07
Died by March 31 2013 (yes)	25.9%	18.0%	<0.001
Male Sex	75.1%	56.2%	<0.001
Substance use disorder (including alcohol) (yes)	89.4%	42.8%	<0.001
Ever on anti-psychotic meds (yes)	48.8%	38.8%	<0.001
Seen a psychiatrist at least once during the study period (yes)	70.1%	59.9%	<0.001

- Of 515,908 BC residents accessing medical services from 1998-2013 in our study sample, 2.6% (n=13,412) were PLHIV.
- Prevalence of SZO diagnosis during our study period was significantly higher among PLHIV compared to HIV-negative individuals (6.3% versus 1.1%, p<0.001).
- Compared to SZO+/HIV-, SZO+/HIV+ were significantly (all p<0.001) more likely to be male, have a concurrent substance use disorder), and ever be on anti-psychotic medication **(Table 1)**.

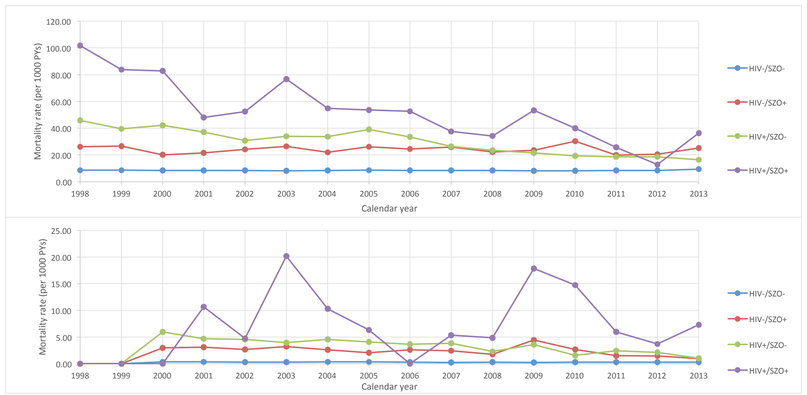

Figure 2- All-cause mortality (top), as well as accident specific mortality (bottom) remained relatively stable throughout the study period for all groups, with the group with the highest mortality (HIV+/SZO+) showing a steady decline up until 2012.

- Mortality among the HIV+/SZO+ group may be increasing in more recent years, which may in part be due to increases in accident specific mortality (e.g. overdoses, traffic accidents and suicides)
- Among all individuals with a SZO diagnosis during our study, PLHIV had a 2.62 times increased odds (95%CI=2.13-3.22) of mortality during the study period compared to those not living with HIV, after controlling for substance use disorder diagnosis and age at baseline.

Results Continued

Table 2- Unadjusted and adjusted factors associated with mortality among HIV+/SZO+

Characteristic	Died n%	Alive n%	Unadjusted Odds Ratio (95%CI)	Adjusted Odds Ratio
Age at COAST baseline median (Q1, Q3)	41 (34-48)	36 (29-42)	1.74 (1.48-2.05)	1.80 (1.51-2.15)
Sex				
Female	56 (25.7)	153 (24.5)	1.06 (0.75-1.52)	Not Included
Male	162 (74.3)	471 (75.5)	Ref	
Indigenous ancestry				
No	47 (21.6)	207 (33.2)	Ref	Ref
Yes	35 (16.1)	71 (11.4)	2.17 (1.30-3.63)	2.35 (1.36-4.05)
Unknown	136 (62.4)	346 (55.5)	1.73 (1.19-2.52)	1.86 (1.22-2.83)
Men who have sex with men				
No	87 (39.9)	258 (41.4)	Ref	
Yes	30 (13.8)	130 (20.8)	0.68 (0.43-1.09)	Not Selected
Unknown	101 (46.3)	236 (37.8)	1.27 (0.91-1.78)	
History of injection drug use				
No	55 (25.2)	157 (25.2)	Ref	Ref
Yes	163 (74.8)	467 (74.8)	1.00 (0.70-1.42)	1.62 (1.07-2.46)
AIDS ever				
No	142 (65.1)	425 (68.1)	Ref	Ref
Yes	45 (20.6)	88 (14.1)	1.53 (1.02-2.30)	1.68 (1.08-2.62)
Unknown	31 (14.2)	111 (17.8)	0.84 (0.54-1.30)	0.53 (0.32-0.86)
Ever on ART				
No	80 (36.7)	200 (32.1)	1.00	Not Selected
Yes	138 (63.3)	424 (67.9)	0.81 (0.59-1.12)	
Ever on anti-psychotic meds				
No	131 (60.1)	300 (48.1)	1.00	1.00
Yes	87 (39.9)	324 (51.9)	0.61 (0.45-0.84)	0.65 (0.46-0.92)
Ever had a psychiatry service code				
No	87 (39.9)	164 (26.3)	1.00	1.00
Yes	131 (60.1)	460 (73.7)	0.54 (0.39-0.74)	0.63 (0.44-0.91)

- Among HIV+/SZO+ increased odds of mortality was associated with Indigenous ancestry, history of injection drug use, ever having AIDS.
- Those who have ever been on anti-psychotic meds or had a psychiatric service code were at reduced odds of dying throughout the study period.

Discussion

- HIV+/SZO+ were at increased risk of mortality compared to HIV+/SZO-, as well as HIV-/SZO+
- Since 1998 mortality rates among HIV+/SZO+ have remained higher than the other 4 reference groups, although has decreased slightly until 2012, where both all-cause and accident specific mortality increased from 2012 to 2013.
- Specific interventions should seek to improve the health and well-being of PLHIV concurrently living with severe mental health issues, including SZO.
- Our findings suggest, so as to reduce the excess burden of mortality among individuals with SZO, efforts should be targeted towards individuals of Indigenous ancestry, who have a history of substance use and are not adequately linked to HIV as well as psychiatric care.

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