



Collateral damage: Impact of SARS-CoV-2 pandemic in people living with HIV

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Abstract

People living with HIV (PLWH) may be at higher risk for adverse outcomes indirectly associated with the severe acute respiratory syndrome coronavirus (SARS-CoV-2). When comparing responses to questionnaires administered when social distancing and quarantine guidelines were first implemented, we found that PLWH were more likely to have restricted access to medical care, increased financial stress, increased symptoms of anxiety and depression, and increased substance use compared to demographically-similar people without HIV.

Keywords HIV · COVID-19 · Depression · Substance use

As of October 2020, over 8 million people in the United States have been diagnosed with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (CDC COVID Data Tracker, <https://covid.cdc.gov/covid-data-tracker/>). While there is currently little evidence to suggest people living with HIV (PLWH) are more susceptible to acquiring SARS-CoV-2 infection compared to the general population, PLWH may be at greater risk for adverse outcomes indirectly associated with the coronavirus (Inciarte et al. 2020; Park et al. 2020).

Here, we describe the effects of factors secondary to SARS-CoV-2, including quarantine and social isolation that was initially implemented and their effects on access to medical care, financial burden, mental health and substance use in PLWH and demographically-similar persons without HIV (HIV-) who have not been diagnosed with SARS-CoV-2. In April and May 2020 during the early onset of the pandemic, questionnaires were administered through telephone or email to PLWH (mean age = 50.3, SD = 12.7; age range = 26–79) and HIV- (mean age = 48.5, SD = 14.1; age range = 25–74)

who previously participated (within the past 3 years) in studies at Washington University in St. Louis. All participants gave written informed consent and were compensated for their participation.

Our PLWH participants represent a primarily older, disadvantaged group as indicated by the area deprivation index (77th percentile) (Kind and Buckingham 2018). PLWH perceived significantly decreased access to medical care and greater financial stress, compared to HIV- (p -values < 0.05) despite no difference in the rate of job or income loss (Table 1). There was a trend-level relationship for food insecurity, with a greater percentage of PLWH indicating that they have recently gone hungry due to not having enough food. Additionally, PLWH indicated significantly more depressive symptoms, anxiety symptoms, and feelings of loneliness compared to HIV-. Anxiety levels had increased more from a previous visit prior to the pandemic with regards to the current survey for PLWH compared to HIV-. Use of tobacco and marijuana in the previous 30 days, and change in marijuana use from the previous study visit, was significantly greater in PLWH compared to HIV-. Greater marijuana use was significantly correlated with higher symptoms of depression ($r = 0.25$, $p = 0.008$) and anxiety ($r = 0.22$, $p = 0.01$).

These data suggest a potential significant effect of the SARS-CoV-2 pandemic on the well-being of individuals even in the absence of a positive diagnosis. These effects may be greater in populations that are more marginalized, such as PLWH. It may be beneficial to further explore

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Table 1 Demographic characteristics and questionnaire data

Measure	HIV- (n = 54)	PLWH (n = 133)	p-value
Months since previous study visit; M (SD)	20.8 (15.6)	19.4 (12.3)	
Demographics			
Age; M(SD)	48.5 (14.1)	50.3 (12.7)	0.46
Sex (% Male)	54%	67%	0.09
Race (% AA)	56%	68%	0.12
Years of education; M(SD)	14.1 (2.1)	13.3 (2.5)	0.1
National Area Deprivation Index; M(SD)	68.6 (14.0)	77.2 (16.6)	0.03
Clinical Characteristics of PLWH			
Nadir CD4 T-cell count, Median (IQR)	-	198 (87–264)	-
Recent CD4 T-cell count, Median (IQR)	-	620 (493–847)	-
Undetectable viral load (% < 50 copies/mL)	-	96%	-
Medical Access and Financial Burden			
"Since March 1, 2020, I have limited access/lost access to medical care; or, the way my medical care has been delivered has changed and does not meet my needs as well as before" (% Yes)	3.7%	13.5%	< .001
Current financial stress scale rating (On a scale of 0 (no financial stress) to 10 (severe financial stress)); M(SD)	3.2 (2.3)	5.4 (2.7)	0.001
Change in financial stress scale rating from January 2020; M(SD)	+0.9 (1.7)	+2.1 (2.6)	0.03
"In the past month, was there any day when you or anyone in your family went hungry because you did not have enough food?" (% Yes)	2%	10%	0.09
"Since the start of the COVID pandemic in the US, have you taken a cut in wage, salary, self-employed income, or involuntary lost a job? (%Yes)	47%	38%	0.33
Mental Health			
Beck Depression Inventory—II (BDI-II) Score; M(SD)	7.8 (7.1)	13.8 (11.4)	0.009
Change in BDI-II Score since previous study visit; M(SD)	+4.0 (6.3)	+5.0 (6.7)	0.51
Hospital Anxiety and Depression Scale (HADS)—Anxiety Subscale Score; M(SD)	4.6 (2.5)	7.7 (4.4)	0.001
Change in HADS- Anxiety subscale score since previous visit; M(SD)	+0.5 (1.8)	+2.1 (2.3)	0.04
UCLA Loneliness Scale	14.1 (10.4)	23.0 (13.9)	0.003
Substance Use—30 Day KMSK			
Alcohol subscale score	3.3 (3.6)	3.8 (3.9)	0.43
Change in alcohol subscale score since previous visit	+0.8 (4.3)	+1.0 (3.3)	0.85
Tobacco subscale score	1.2 (3.1)	2.7 (4.2)	0.03
Change in tobacco subscale score since previous visit	+0.4 (2.9)	+1.1 (3.1)	0.44
Marijuana subscale score	0.6 (2.1)	3.0 (4.3)	< .001
Change in marijuana subscale score since previous visit	+0.1 (0.3)	+2.3 (3.9)	0.03

Bolded values indicate significance at

M mean, *SD* standard deviation, *AA* African American, *IQR* Interquartile range, *KMSK* Kreek-McHugh-Schluger-Kellogg scale
 $p < .05$

the effects of SARS-CoV-2 in PLWH from a syndemic perspective, or the synergistic interaction of two or more epidemics producing increased disease burden in a specific population (Shiau et al. 2020). PLWH, particularly those already at greater risk for poorer mental health and substance abuse, could benefit from services and resources designed to help disadvantaged populations amidst the SARS-CoV-2 pandemic.

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