

Characteristics of Individuals with Significant Depressive Symptoms among People Living with HIV in British Columbia

Clara Tam¹, Lu Wang¹, Justin Barath¹, Tim Wesseling¹, Sean Grieve¹, Kate Salters^{1,2}, David Moore^{1,3}, Rolando Barrios^{1,3,4}

1) BC Centre for Excellence in HIV/AIDS, Vancouver, Canada; 2) Simon Fraser University, Burnaby, Canada; 3) University of British Columbia, Vancouver, Canada; 4) Vancouver Community Health Services, Vancouver Coastal Health, Vancouver, Canada

Background

Depressive symptoms are one of the most common psychological symptoms associated with people living with HIV (PLWH)¹. Clinical depression has been associated with worse health outcomes, HIV progression, and increased mortality among PLWH². Although depressive symptoms may not meet the criteria for clinical depression, the role of depressive symptoms on antiretroviral therapy (ART) adherence has been described in various studies^{3,4}.

Using the validated 10-item Center for Epidemiologic Studies Depression Scale (CES-D 10)⁵, we identified prevalence and characteristics of baseline depressive symptoms in a cohort of PLWH in British Columbia (BC).

Methods

- Between January 2016 and September 2018, we used purposive sampling to enroll PLWH aged ≥19 who reside in BC into the STOP HIV/AIDS Program Evaluation (SHAPE) study (n=644). Participants completed a HIV-related health questionnaire which includes the CES-D 10.
- Depressive symptoms were identified using the CES-D 10, a 10-item self-reported measure of individual's depressive feelings in the past week. A score of ten or higher on the CES-D 10 indicates the presence of significant depressive symptoms⁵.
- Explanatory variables were selected based on literature, available data and lived experience of PLWH.
- We conducted bivariate analyses between key demographic groups and a CES-D 10 score ≥10. Chi-square or Fisher's Exact test were used for categorical variables, and Wilcoxon Rank Sum test was used for continuous variables. Multivariable logistic regression modelled whether key demographic groups were associated with depressive symptoms.

Results

Of 644 participants who completed the baseline survey, 627 participants completed the full CES-D 10 scale and were included in this cross-sectional analysis.

- Of these, 310 (49.4%) had a CES-D 10 score ≥10, 134 (21.4%) were female, 130 (20.7%) reported injection drug use (IDU) in the past year, 371 (59.2%) identified as MSM (See **Table 1**).
- In the final multivariable model, age ≥60, personal annual gross income, food insufficiency, ever having a mental health disorder diagnosis, and experiences of lifetime violence were associated with a CES-D 10 score ≥10 (See **Table 2**).
 - Other variables including gender, education, IDU, homelessness were included but not selected in the final model.

Conclusion

- Food insufficiency, ever having a mental health disorder diagnosis, and experiences of lifetime violence were positively associated with depressive symptoms.
- Participants ≥60 years of age at time of interview, and those with higher personal annual gross income were negatively associated with depressive symptoms.
- Identifying key characteristics associated with depressive symptoms can help screen for depressive symptoms earlier and strengthens previous research linking depression in PLWH specifically to a population in BC.

Table 1: Baseline characteristics of SHAPE participants by CES-D 10 scores

Variable	CES-D 10 score <10 (N=317) (N, %)	CES-D 10 score ≥10 (N=310) (N, %)	P-value
Age at interview			<0.001
Less than 40	57 (18.0)	67 (21.6)	
40 to 49	74 (23.3)	101 (32.6)	
50 to 59	114 (36.0)	110 (35.5)	
60 or more	72 (22.7)	32 (10.3)	
Gender			0.036
Male	255 (80.4)	227 (73.2)	
Female	55 (17.4)	79 (25.5)	
Other	7 (2.2)	4 (1.3)	
Personal annual gross income			<0.001
Less than 15000	103 (33.4)	164 (54.1)	
15000 to 29999	104 (33.8)	76 (25.1)	
30000 to 59999	55 (17.9)	38 (12.5)	
60000 or more	46 (14.9)	25 (8.3)	
Depression diagnosis ever			<0.001
No	199 (62.8)	117 (37.7)	
Yes	118 (37.2)	193 (62.3)	
Homelessness ever			<0.001
No	182 (57.4)	131 (42.3)	
Yes	135 (42.6)	179 (57.7)	
Injection drug use in the past year			<0.001
No	272 (85.8)	225 (72.6)	
Yes	45 (14.2)	85 (27.4)	
Violence ever			<0.001
No	94 (30.0)	47 (15.4)	
Yes	219 (70.0)	258 (84.6)	

Table 2: Multivariable logistic regression modelling the probability of CES-D 10 scores ≥10

Variable	aOR (95% CI)	Variable	aOR (95% CI)
Age at interview		Food sufficiency	
Less than 40	1.0	Sufficient/Sufficient but not diverse	1.0
40 to 49	1.02 (0.61-1.71)	Insufficient and not diverse	2.00 (1.27-3.16)
50 to 59	0.76 (0.47-1.24)	Mental health diagnosis ever	
60 or more	0.52 (0.28-0.94)	No	1.0
Personal annual gross income		Yes	2.51 (1.72-3.66)
Less than 15000	1.0	Violence ever	
15000 to 29999	0.51 (0.34-0.78)	No	1.0
30000 to 59999	0.59 (0.35-1.00)	Yes	1.78 (1.15-2.76)
60000 or more	0.49 (0.27-0.90)		

References

- 1) Gonzalez, J. S., Batchelder, A. W., Psaros, C., & Safren, S. A. (2011). Depression and HIV/AIDS Treatment Nonadherence: A Review and Meta-analysis. *J AIDS Journal of Acquired Immune Deficiency Syndromes*, 58(2), 181–187. <https://doi.org/10.1097/QAI.0B013E31822D490A>
- 2) Rabkin, J. G. (2008). HIV and depression: 2008 review and update. *Current HIV/AIDS Reports*, 5(4), 163–171. <https://doi.org/10.1007/s11904-008-0025-1>
- 3) Starace, F., Ammassari, A., Trotta, M. P., Murri, R., De Longis, P., Izzo, C., ... Antinori, A. (2002). Depression Is a Risk Factor for Suboptimal Adherence to Highly Active Antiretroviral Therapy. *J AIDS Journal of Acquired Immune Deficiency Syndromes*, 31, S136–S139. <https://doi.org/10.1097/00126334-200212153-00010>
- 4) Wagner, G. J., Goggin, K., Remien, R. H., Rosen, M. I., Simoni, J., Bangsberg, D. R., & Liu, H. (2011). A Closer Look at Depression and Its Relationship to HIV Antiretroviral Adherence. *Annals of Behavioral Medicine*, 42(3), 352–360. <https://doi.org/10.1007/s12160-011-9295-8>
- 5) Zhang, W., O'Brien, N., Forrest, J. I., Salters, K. A., Patterson, T. L., Montaner, J. S. G., ... Lima, V. D. (2012). Validating a Shortened Depression Scale (10 Item CES-D) among HIV-Positive People in British Columbia, Canada. *PLoS ONE*, 7(7), e40793. <https://doi.org/10.1371/journal.pone.0040793>