Lack of demographic differences in effectiveness of self-administered screening and follow-up treatment for mental health and substance use in HIV primary care

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Background

Substance use (SU), depression and anxiety are common among persons with HIV (PWH) yet often go *unrecognized* and *untreated.*

Systematic computerized screening and treatment has great potential to significantly improve mental health and substance use outcomes.

Our objective was to evaluate the effectiveness of computerized SU and mental health screening and behavioral treatment among PWH in an integrated healthcare system. We also evaluate differences in effectiveness by age, race/ethnicity and sex, with a focus on changes in alcohol use

Methods

Study design

The Promoting Access to Care Engagement (PACE) trial enrolled PWH from 3 large HIV primary care clinics in Kaiser Permanente Northern California from October 2018-July 2020. At baseline and every 6 months, PWH received electronic self-administered screening for SU (Tobacco, Alcohol, Cannabis and other Substance use; TAPS[1]), depression (Patient Health Questionnaire-9; PHQ-9[2]), and anxiety (Generalized Anxiety Disorder-2; GAD-2[3]), with results integrated in the electronic health record. Brief intervention and referrals to specialty care were provided by behavioral health specialists and HIV providers for those who screened positive.

[1]McNeely et al. Ann Int Med 2016; [2]Kroenke et al. JGIM 2001; [3]Plummer et al. Gen Hosp Psych 2016

Study population

Enrolled in PACE (N=2,865)

↓

Screened positive at baseline (N=1,494)

↓

Second screen at ≥6 months (N=403)

Measure	Range	Positive score
PHQ-9	0-27	≥10 (depression)
GAD-2	0-6	≥3 (anxiety)
Alcohol	0-4	≥2 (problem use)
Cannabis	0-3	≥2 (problem use)
Tobacco	0-3	≥1 (any use)

Data analysis

Outcome: Mean change in PHQ-9, GAD-2 and TAPS scores for common substances (alcohol, cannabis, tobacco) between baseline and 6-month follow-up.

Covariates: Age, sex, race/ethnicity, HIV risk factor, HIV RNA levels, CD4 cell counts, behavioral health specialist visit

Statistical methods: Changes in scores were evaluated with generalized linear models (SAS 9.4) including:

- An intercept only model was fit to provide estimates of overall unadjusted changes in scores.
- A model with all covariates was fit to estimate changes in scores within categories defined by age, sex and race/ethnicity.

Results

Descriptive characteristics: Of 403 PWH, 61% were ≥50 years; 90% were male; 51% White, 23% Black, and 17% Hispanic; and 77% men who have sex with men. At baseline, 108 had depression and 126 had anxiety. A total of 147, 107 and 130 screened positive for alcohol, cannabis and tobacco, respectively.

Unadjusted changes: There were significant declines (i.e., improvements) in mental health and substance use mean scores before and after intervention implementation:

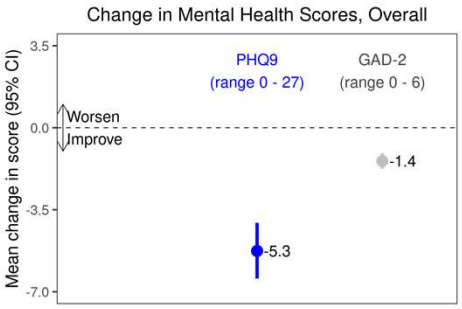
PHQ-9 (range 0-27): -5.3 (p<0.001)
GAD-2 (range 0-6): -1.4 (p<0.001)
Alcohol (range 0-4): -0.7 (p<0.001)
Cannabis (range 0-3): -0.6 (p<0.001)
Tobacco (range 0-3): -0.4 (p<0.001)

Table. Adjusted mean differences (p-value) in score changes by demographics

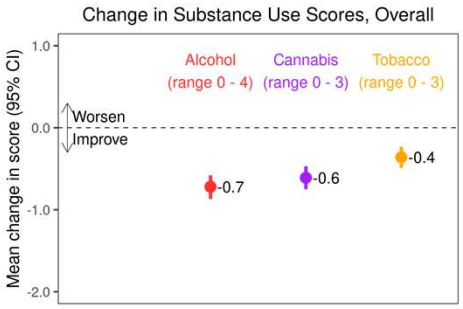
	PHQ-9	GAD-2	Alcohol	Cannabis	Tobacco
Sex					
Women	-1.58 (0.55)	-0.71 (0.27)	+0.08 (0.90)	+0.25 (0.39)	+0.06 (0.84)
Men	(ref)	(ref)	(ref)	(ref)	(ref)
Race/ethnicity					
Black	-0.82 (0.61)	**-0.89 (0.049)**	-0.20 (0.40)	+0.11 (0.55)	-0.02 (0.88)
Hispanic	-2.43 (0.28)	-0.53 (0.27)	+0.04 (0.80)	-0.21 (0.43)	-0.05 (0.75)
White	(ref)	(ref)	(ref)	(ref)	(ref)
Other	-1.42 (0.51)	**-1.29 (0.034)**	-0.26 (0.34)	-0.16 (0.30)	-0.34 (0.17)
Age					
18-49 years	(ref)	(ref)	(ref)	(ref)	(ref)
50-59 years	-1.88 (0.19)	-0.22 (0.59)	**-0.49 (0.004)**	+0.05 (0.80)	+0.22 (0.16)
≥60 years	-2.07 (0.28)	-0.29 (0.54)	-0.20 (0.31)	-0.22 (0.30)	+0.10 (0.64)

Negative results indicate more improvement versus reference. Bolding indicates P<0.05

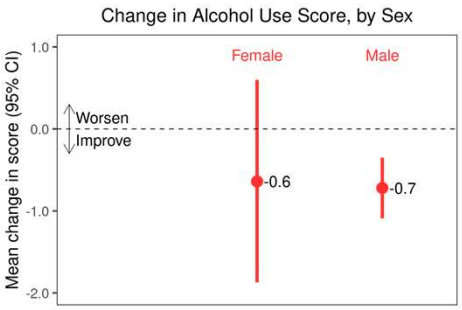
Results (continued)



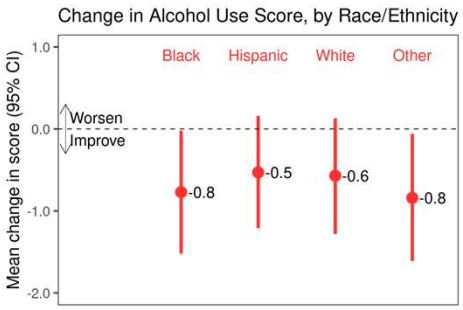
PHQ-9 and GAD-2 scores improved a mean 5.3 and 1.4 points, respectively, between screens



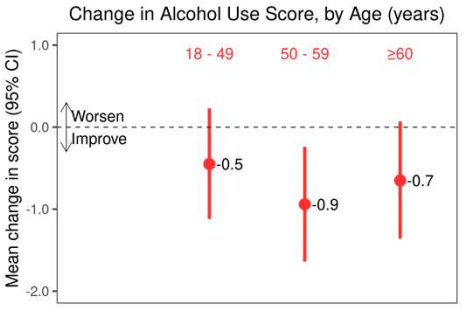
Alcohol, cannabis and tobacco scores improved a mean 0.7, 0.6, and 0.4 points, between screens



No differences by sex in mean decreases in alcohol scores between screens



No differences by race/ethnicity in mean decreases in alcohol scores between screens



Few differences by age in mean decreases in alcohol scores between screens (those 50-59 years had biggest declines)

Strengths

- Systematic screening for mental health and substance use
- Large sample from 3 HIV primary care clinics
- Comprehensive electronic health record data

Limitations

- Generalizability to other health systems, women (only 10%), and uninsured
- Barriers to implementation (e.g., clinic-based tablet issues, shifting to more virtual care with COVID-19)

In three HIV primary care clinics, we observed improvements in self-reported substance use (alcohol, cannabis, tobacco), depression and anxiety after implementation of routine mental health and substance use screening and treatment, with few clinically significant demographic differences

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