TABLE 1 Participants characteristics according to length of time in treatment and treatment compliance.

	Length of time in treatment, n (%) or mean (SD)						Treatment compliance, n (%) or mean (SD)			
	Total (n = 399)	3 or less months (n = 73)	4–7 months (n = 122)	8 or more months (n = 94)	Currently in treatment (n = 109)	P-value	Not completed (n = 200)	Completed (n = 90)	Currently in treatment (n = 109)	P-value
Treatment characteristics[a]										
<30 days in index treatment (% yes)	346 (87.2)	70 (95.9)	99 (81.1)	84 (89.4)	92 (87.6)	0.023	178 (89.0)	75 (83.3)	93 (86.9)	0.409
Inpatient	134 (33.6%)	29 (39.7%)	40 (32.8%)	33 (35.1%)	32 (29.9%)	0.573	69 (34.5%)	33 (36.7%)	32 (29.4%)	0.514
Ratio patients: providers	8.7 (7.7)	9.2 (9.1)	8.7 (8.1)	8.4 (5.7)	8.5 (8.0)	0.906	8.8 (7.9)	8.7 (7.1)	8.4 (8.0)	0.93
Abstinence needed for treatment (% yes)	81 (20.7)	20 (27.8)	20 (16.7)	18 (19.4)	23 (22.1)	0.308	47 (24.0)	11 (12.4)	23 (21.7)	0.077
Participant characteristics[a]										
Age, y	37.7 (10.6)	36.5 (9.4)	36.2 (10.6)	39.4 (10.5)	38.8 (11.4)	0.068	36.3 (9.9)	39.5 (11.0)	38.6 (11.4)	0.036
Female	129 (32.3%)	25 (34.2%)	32 (26.2%)	29 (30.9%)	43 (40.2%)	0.152	54 (27.0%)	32 (35.6%)	43 (39.4%)	0.062
Educational level						0.355				0.34
Less than high school	155 (38.9%)	34 (46.6%)	45 (36.9%)	38 (40.9%)	37 (34.6%)		78 (39.0%)	39 (43.8%)	38 (34.9%)	
Completed high school	129 (32.4%)	24 (32.9%)	45 (36.9%)	28 (30.1%)	32 (29.9%)		70 (35.0%)	27 (30.3%)	32 (29.4%)	
More than high school	114 (28.6%)	15 (20.5%)	32 (26.2%)	27 (29.0%)	38 (35.5%)		52 (26.0%)	23 (25.8%)	39 (35.8%)	
Employment (% yes)	250 (63.1)	39 (53.4)	76 (62.3)	63 (69.2)	69 (64.5)	0.212	123 (61.8)	57 (64.8)	70 (64.2)	0.858
Insecure housing in the past 12 months (% yes)	29 (7.3)	9 (12.3)	9 (7.4)	8 (8.5)	3 (2.8)	0.106	17 (8.5)	9 (10.0)	3 (2.8)	0.093
Primary substance						0.147				0.031
Alcohol	100 (25.1%)	16 (21.9%)	24 (19.7%)	28 (29.8%)	32 (29.9%)		40 (20.0%)	28 (31.1%)	32 (29.4%)	
Cocaine	147 (36.8%)	28 (38.4%)	45 (36.9%)	30 (31.9%)	43 (40.2%)		75 (37.5%)	29 (32.2%)	43 (39.4%)	
Cocaine paste	124 (31.1%)	27 (37.0%)	43 (35.2%)	31 (33.0%)	22 (20.6%)		75 (37.5%)	26 (28.9%)	23 (21.1%)	
Other	28 (7.0%)	2 (2.7%)	10 (8.2%)	5 (5.3%)	10 (9.3%)		10 (5.0%)	7 (7.8%)	11 (10.1%)	
Past month benzodiazepine use (% yes)[a]	92 (57.1)	14 (45.2)	30 (60.0)	15 (50.0)	32 (65.3)	0.269	43 (53.8)	16 (51.6)	33 (66.0)	0.307
Past month polysubstance use (%)	277 (69.4)	52 (71.2)	89 (73.0)	62 (66.0)	72 (67.3)	0.662	151 (75.5)	54 (60.0)	72 (66.1)	0.02
Early initiation in substance use (% yes)	231 (58.2)	47 (65.3)	73 (59.8)	50 (53.2)	59 (55.7)	0.413	127 (63.8)	44 (48.9)	60 (55.6)	0.047
Readiness to change score (URICA)	11.3 (1.2)	11.3 (1.3)	11.4 (1.1)	11.4 (1.1)	11.2 (1.3)	0.412	11.5 (1.1)	11.2 (1.1)	11.1 (1.3)	0.066
Exposure to treatment past 12 months						0.026				0.039
No	202 (51.0%)	37 (50.7%)	65 (54.2%)	53 (56.4%)	45 (42.5%)		106 (53.5%)	50 (55.6%)	46 (42.6%)	
3 or less months	134 (33.8%)	30 (41.1%)	36 (30.0%)	32 (34.0%)	35 (33.0%)		69 (34.8%)	29 (32.2%)	36 (33.3%)	
4 or more months	60 (15.2%)	6 (8.2%)	19 (15.8%)	9 (9.6%)	26 (24.5%)		23 (11.6%)	11 (12.2%)	26 (24.1%)	
First SUD treatment (% yes)	171 (43.0)	31 (42.5)	56 (45.9)	39 (41.5)	43 (40.6)	0.858	87 (43.5)	41 (45.6)	43 (39.8)	0.702
Network quality index	13.5 (4.9)	14.7 (5.2)	13.7 (4.7)	13.4 (4.8)	12.6 (4.7)	0.037	13.9 (5.0)	13.9 (4.6)	12.6 (4.7)	0.072

(Continues)

TABLE 1 (Continued)

	Length of time in treatment, n (%) or mean (SD)						Treatment compliance, n (%) or mean (SD)			
	Total (n = 399)	3 or less months (n = 73)	4–7 months (n = 122)	8 or more months (n = 94)	Currently in treatment (n = 109)	P-value	Not completed (n = 200)	Completed (n = 90)	Currently in treatment (n = 109)	P-value
Cohabitation with someone with a SUD (% yes)	89 (22.4)	13 (18.1)	26 (21.5)	21 (22.3)	28 (26.2)	0.633	42 (21.2)	19 (21.1)	28 (25.7)	0.63
Has a close friend with SUD (% yes)	181 (45.4)	33 (45.2)	55 (45.1)	39 (41.5)	52 (48.6)	0.796	88 (44.0)	41 (45.6)	52 (47.7)	0.822
Participated in self-support groups past 6 months (% yes)	148 (37.1)	22 (30.1)	44 (36.1)	34 (36.2)	47 (43.9)	0.291	65 (32.5)	35 (38.9)	48 (44.0)	0.123
Physical comorbidity (% yes)	99 (24.8)	22 (30.1)	26 (21.3)	25 (26.6)	25 (23.4)	0.533	54 (27.0)	20 (22.2)	25 (22.9)	0.594
Antisocial personality disorder (% yes)	110 (27.6)	26 (35.6)	39 (32.0)	20 (21.3%)	25 (23.6)	0.102	60 (30.0)	24 (26.7)	26 (24.1)	0.526
Disruptive event past 12 months (% yes)	313 (78.4)	57 (78.1)	98 (80.3)	62 (66.0)	94 (87.9)	0.002	149 (74.5)	68 (75.6)	96 (88.1)	0.016
For-profit crimes past 12 months (% yes)	117 (29.3)	19 (26.0)	40 (32.8)	25 (26.6)	31 (29.0)	0.7	61 (30.5)	24 (26.7)	32 (29.4)	0.802
Adverse childhood experiences	3.8 (2.4)	3.9 (2.4)	3.6 (2.4)	3.5 (2.4)	4.3 (2.3)	0.13	3.8 (2.5)	3.4 (2.3)	4.3 (2.3)	0.057

Note: P-values were obtained using ANOVA for continuous variables and χ^2 test for categorical variables. Tests were conducted excluding missing data.

Abbreviations: ANOVA, analysis of variance; SD, standard deviation; SUD, substance use disorder; URICA, University of Rhode Island Change Assessment.

[a]Missing values (~1%–10%) are not shown (see Table S5–S6). The data shown is not weighted.

for 3 or fewer months in treatment, 30.7% between 4 and 7 months and 23.7% for 8 or more months. A total of 22.6% completed their treatment plan, whereas half did not (50.1%). A total of 27.3% were currently in the index treatment or a subsequent treatment.

Changes in substance use and psychiatric outcomes from baseline to 18 months of follow-up

Table 2 shows weighted outcomes throughout time, to account for loss to follow-up (IPCW), hence, the analytic sample 'stands in' for those who were censored. A total of 90.7% declared past month use of their primary substance at baseline, decreasing to 35.3% at 18 months of follow-up ($P < 0.001$). Reductions were also observed for past month use of alcohol (73.5% to 50.5%, $P < 0.001$), cannabis (41.5% to 24.1%, $P < 0.001$), cocaine powder (51.7% to 16.1%, $P < 0.001$) and cocaine paste (43.6% to 16.1%, $P < 0.001$). Approximately half (51.4%) screened positive for at least one of the current psychiatric diagnoses included at baseline, which decreased to 39.1% at 18 months ($P < 0.001$). The most prevalent current psychiatric comorbidities included major depressive episodes (40.9% baseline, 30.7% 18 months, $P = 0.002$), generalized anxiety (27.2% baseline, 21.7% 18 months, $P = 0.009$), panic (10.6% baseline, 5.5% 18 months, $P = 0.021$) and PTSD (7.4% baseline, 8.3% 18 months, $P = 0.587$).

Unadjusted and adjusted effects of length of time in treatment and compliance with treatment on substance use and psychiatric outcomes

After trimming the weights at the 2nd and 98th percentiles, covariate balance was generally improved, most with SMD <10% (Table S8–S9). Figure 1 summarizes the main results and Table 3 shows the unadjusted RR and the adjusted marginal RR using IPCW and IPTW for our primary outcomes.

Participating for 8+ months in treatment (vs. 0–3 months, measured at 12 months) was associated with lower risk of past month primary substance use at 18 months (RR = 0.62, 95% CI = 0.38–1.00), although this result was borderline significant, as did completing the treatment plan (vs. not completed, RR = 0.49, 95% CI = 0.30–0.80). Being currently in treatment at 12 months of follow-up was associated with lower risk of past month primary substance use at 18 months (vs. participating for 0–3 months: RR = 0.47, 95% CI = 0.28–0.81; vs. not completed treatment plan: RR = 0.5, 95% CI = 0.31–0.80).

Participating for 4 to 7 or 8+ months in treatment (vs. 0–3 months, measured at 12 months) were not associated with the risk of presenting any current psychiatric comorbidity at 18 months of follow-up (4–7 months: RR = 0.72, 95% CI = 0.50–1.03; 8+ months: RR = 0.83, 95% CI = 0.57–1.22), nor was treatment compliance (vs. not completed, RR = 1.02, 95% CI = 0.72–1.46). Being in treatment at 12 months of follow-up (vs. participating for 0–3 months: RR = 0.36, 95% CI = 0.17–0.75; vs. not completed treatment plan: