INHSU2021

DETERMINANTS OF LONG-TERM RETENTION IN OPIOID AGONIST THERAPY AMONG PEOPLE WHO INJECT DRUGS IN MONTREAL, CANADA

Research Oral Abstract Session - Addressing Drug Related Harms
Wednesday, Oct 13, 2021

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ACKNOWLEDGEMENTS

Conflicts of Interest and Source of Funding : None to declare

BACKGROUND

- Opioid agonist therapy is a key intervention in preventing hepatitis C virus infection among people who inject drugs with opioid use disorder

- Long-term engagement in OAT has been associated with improved health and social outcomes in people with OUD

- Retention in OAT as an indicator of treatment effectiveness

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OBJECTIVE Identify sociodemographic characteristics, drug use patterns, and treatment factors associated with long-term retention in OAT.

METHODS Design : Cross-sectional study (secondary analysis)
Data from baseline questionnaire of longitudinal cohort study (HEPCO)
Eligibility to OAT : illicit opioid use or OAT receipt in the past 6 months
Retention in OAT : self-reported time spent in treatment at baseline :

Not enrolled in OAT	n = 291
< 1 year	n = 73
1 – 3 years	n = 53
≥ 3 years	n = 129

Statistical analysis : multinomial logistic regression

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RESULTS

Female Gender

Adjusted Odds Ratio (95% CI) vs. Duration of enrollment in OAT

- Not enrolled in OAT (*Ref.*): 1.0
- < 1 year: 1.31 (0.60-2.84)
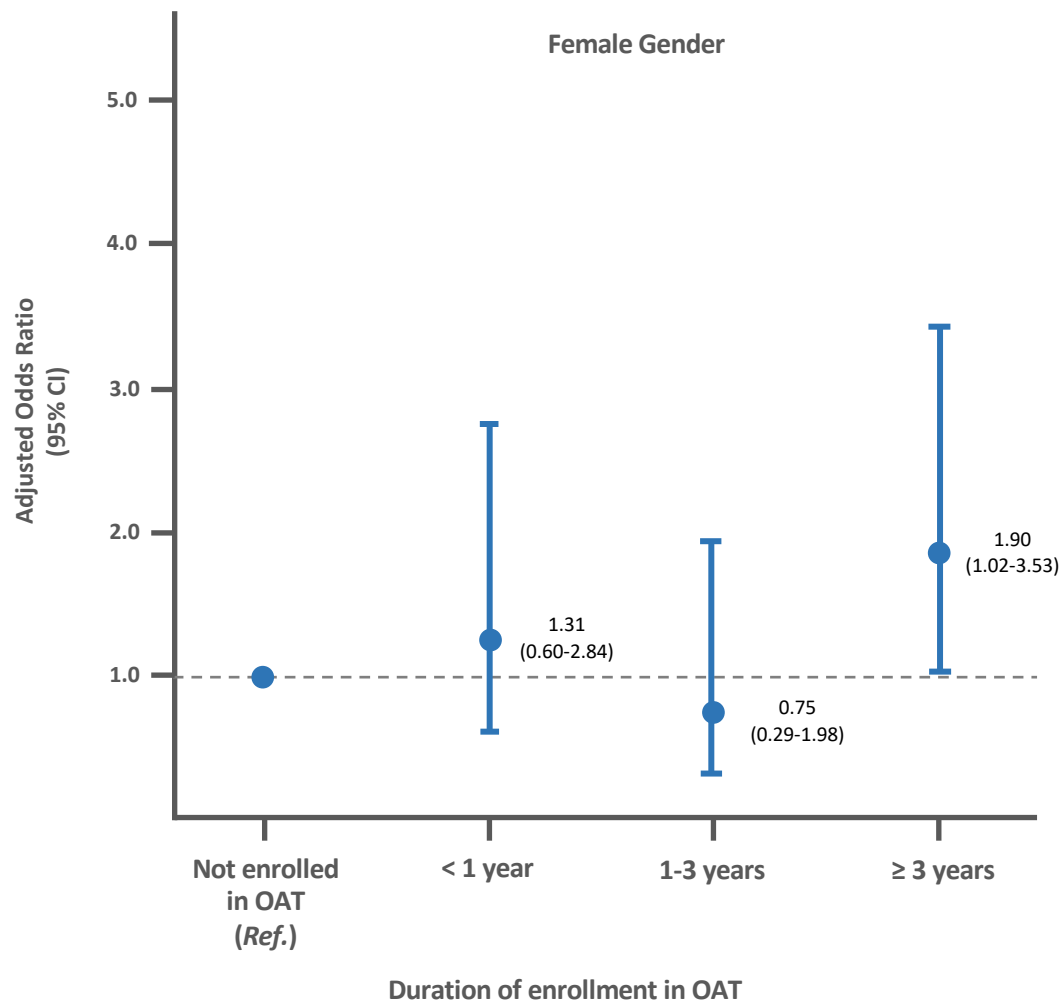- 1-3 years: 0.75 (0.29-1.98)
- ≥ 3 years: 1.90 (1.02-3.53)

Table 1 : Multinomial multivariate logistic regression of individual factors on retention in OAT, comparing the 3 retention categories vs. a category of participants not enrolled in treatment (Ref.)

| | Duration of enrollment in OAT | | | | | |
| | < 1 year | | 1 – 3 years | | ≥ 3 years | |
	AOR	95% CI	AOR	95% CI	AOR	95% CI
Socio-demographic variables						
Gender, female	1.31	[0.60-2.84]	0.75	[0.29-1.98]	1.90	[1.02-3.53]
Age (for 1-year increment)	0.95	[0.92-0.98]	0.96	[0.93-0.96]	1.02	[1.00-1.03]
Living with partner	0.75	[0.31-1.84]	0.93	[0.34-2.52]	1.30	[0.67-2.51]
Highschool completed	0.93	[0.51-1.70]	1.65	[0.83-3.28]	0.99	[0.60-1.65]
Income ≥ 1000 $ in past month	2.18	[1.18-4.04]	1.60	[0.82-3.10]	1.57	[0.95-2.62]
Stable housing[†]	1.71	[0.90-3.27]	1.83	[0.89-3.79]	3.39	[1.91-6.02]
Recent incarceration[‡]	1.27	[0.63-2.53]	1.07	[0.50-2.30]	1.03	[0.55-1.94]
HIV serologic status, positive	0.95	[0.21-4.28]	1.14	[0.22-5.88]	0.75	[0.22-2.55]
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Regular drug or alcohol use in past month						
Alcohol	0.23	[0.08-0.62]	0.74	[0.32-1.71]	0.75	[0.41-1.38]
Opioids	0.41	[0.21-0.78]	0.66	[0.33-1.31]	0.42	[0.24-0.72]
Crack/cocaine	0.44	[0.23-0.85]	0.79	[0.40-1.55]	0.47	[0.28-0.81]
Amphetamines	0.66	[0.25-1.74]	0.52	[1.16-1.67]	0.75	[0.33-1.73]
Benzodiazepines	1.20	[0.52-2.80]	1.55	[0.64-3.70]	1.93	[0.99-3.77]
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Harm-related behaviours						
Daily or more frequent injection frequency	0.30	[0.13-0.69]	0.20	[0.07-0.59]	0.67	[0.35-1.28]
Needle sharing[†]	1.06	[0.39-2.89]	0.69	[0.17-2.79]	1.24	[0.51-3.04]
Injection/inhalation material sharing[†]	0.89	[0.38-2.08]	0.43	[0.14-1.27]	0.45	[0.20-0;99]
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AOR : adjusted odds ratio ; 95% CI : 95% confidence interval ; OAT : opioid agonist therapy
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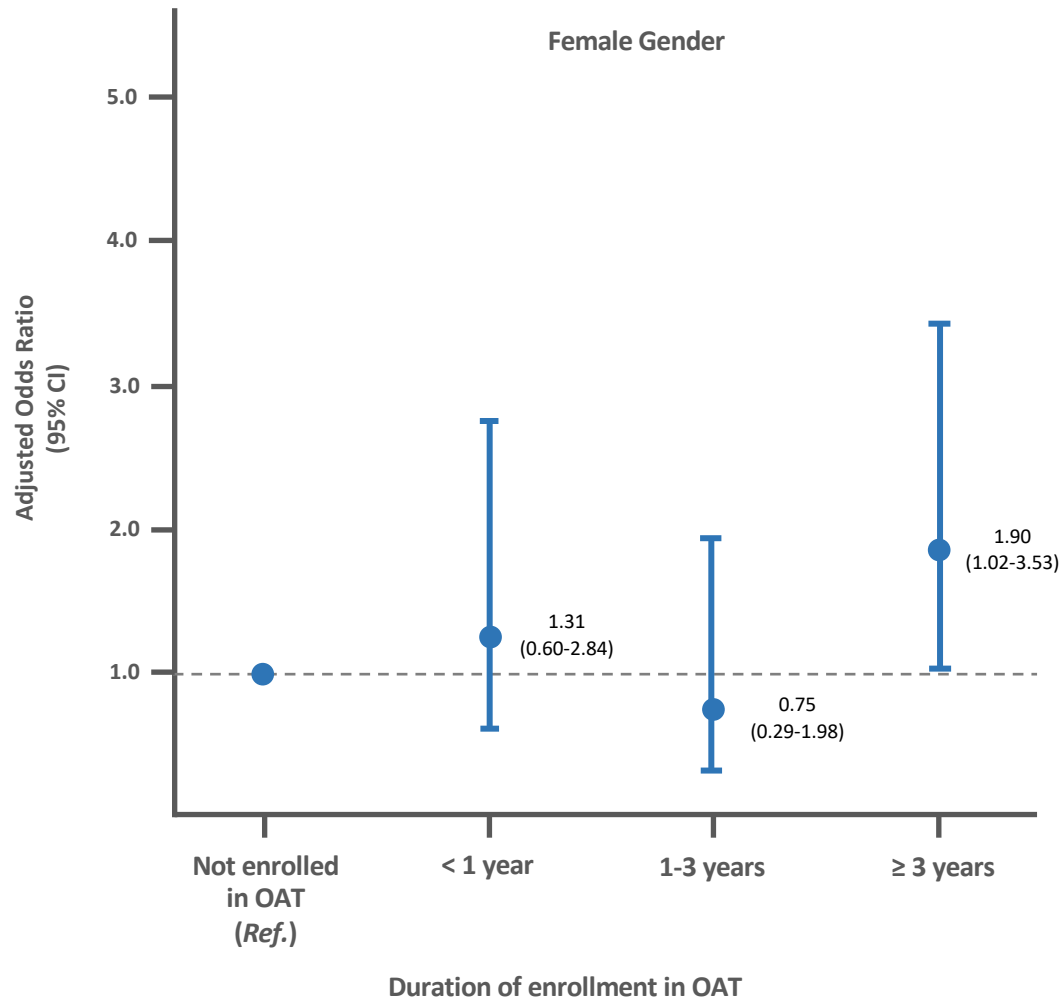- ≥ 3 years: 1.90 (1.02-3.53)

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RESULTS

Stable Housing (past 3 months) — forest plot showing Adjusted Odds Ratio (95% CI) vs. Duration of enrollment in OAT:
- Not enrolled in OAT (Ref.): 1.0
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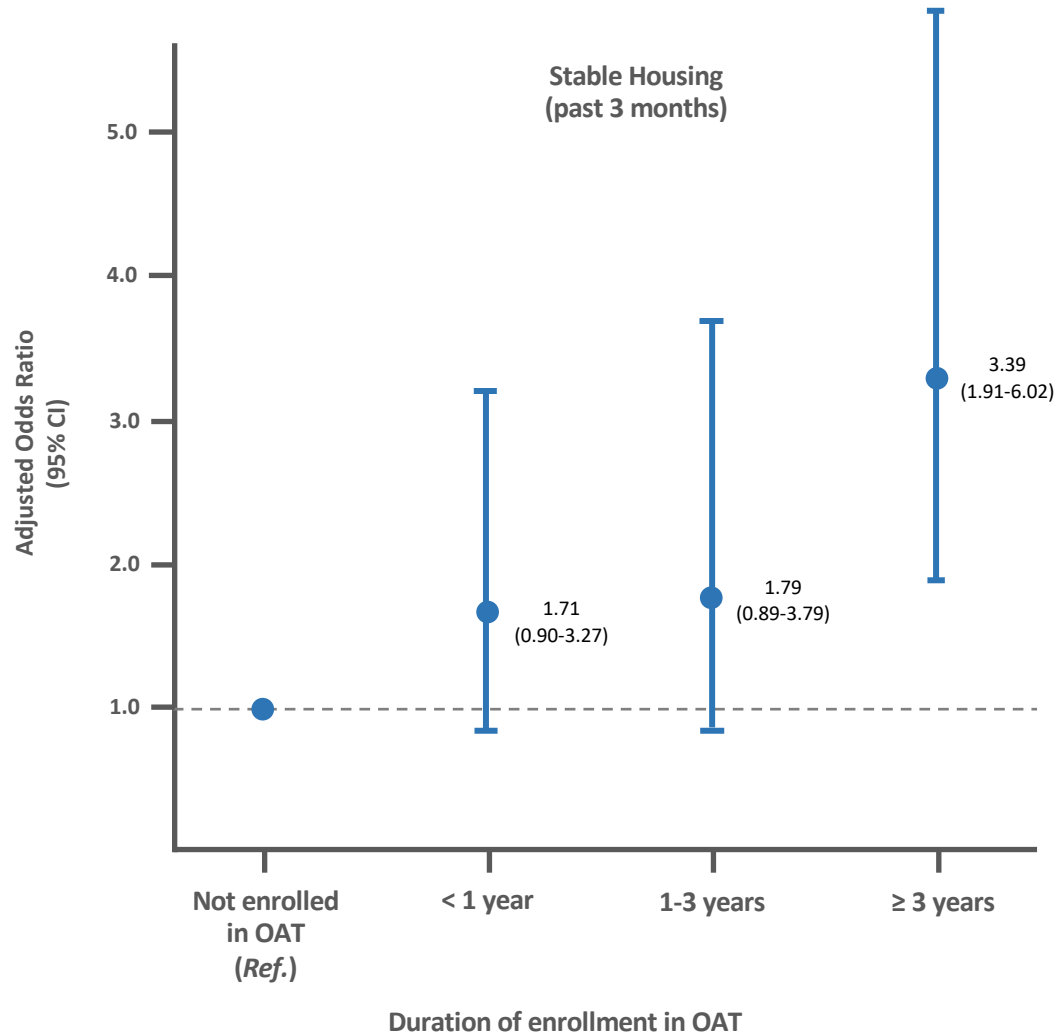- 1-3 years: 1.79 (0.89-3.79)
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Regular Drug or Alcohol Use in Past Month

(Adjusted Odds Ratio (95% CI) plotted against enrollment duration: Not enrolled in OAT (Ref.), < 1 year, 1-3 years, ≥ 3 years — Opioids)
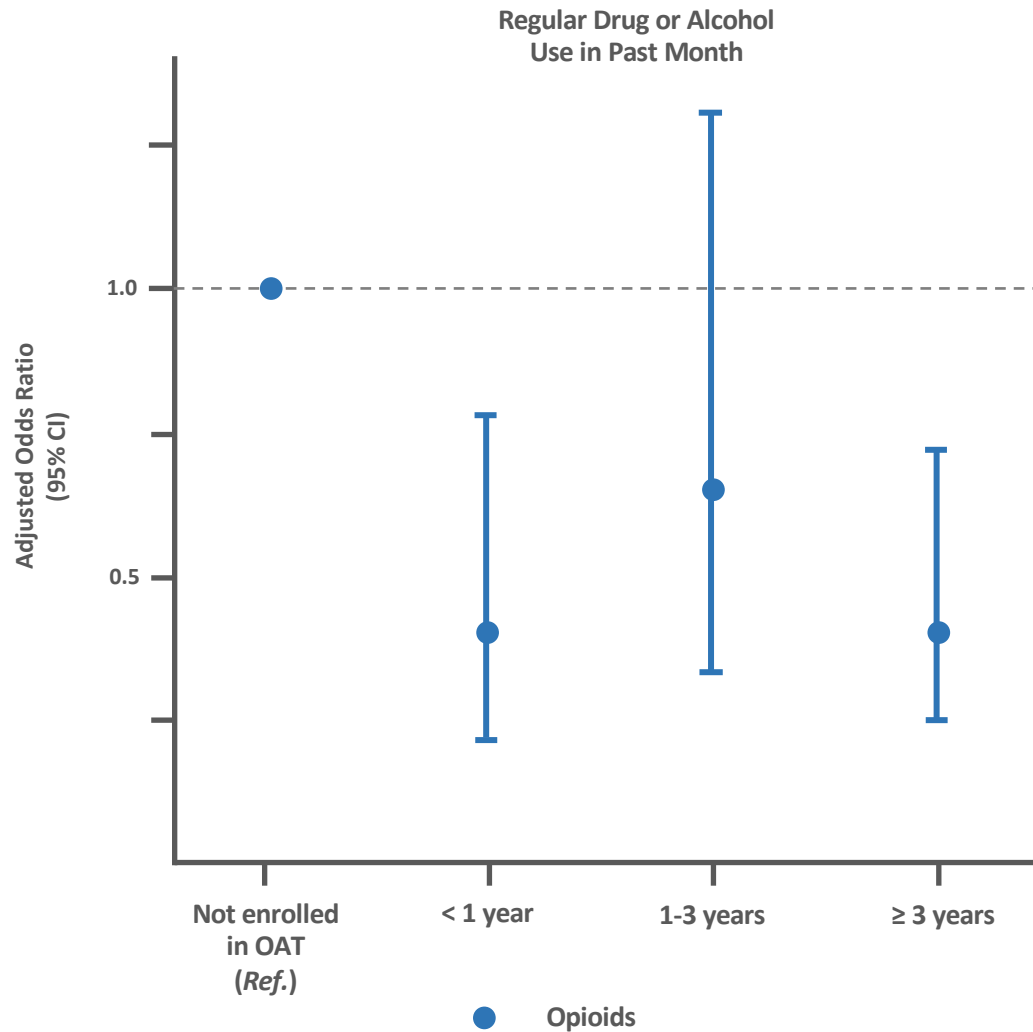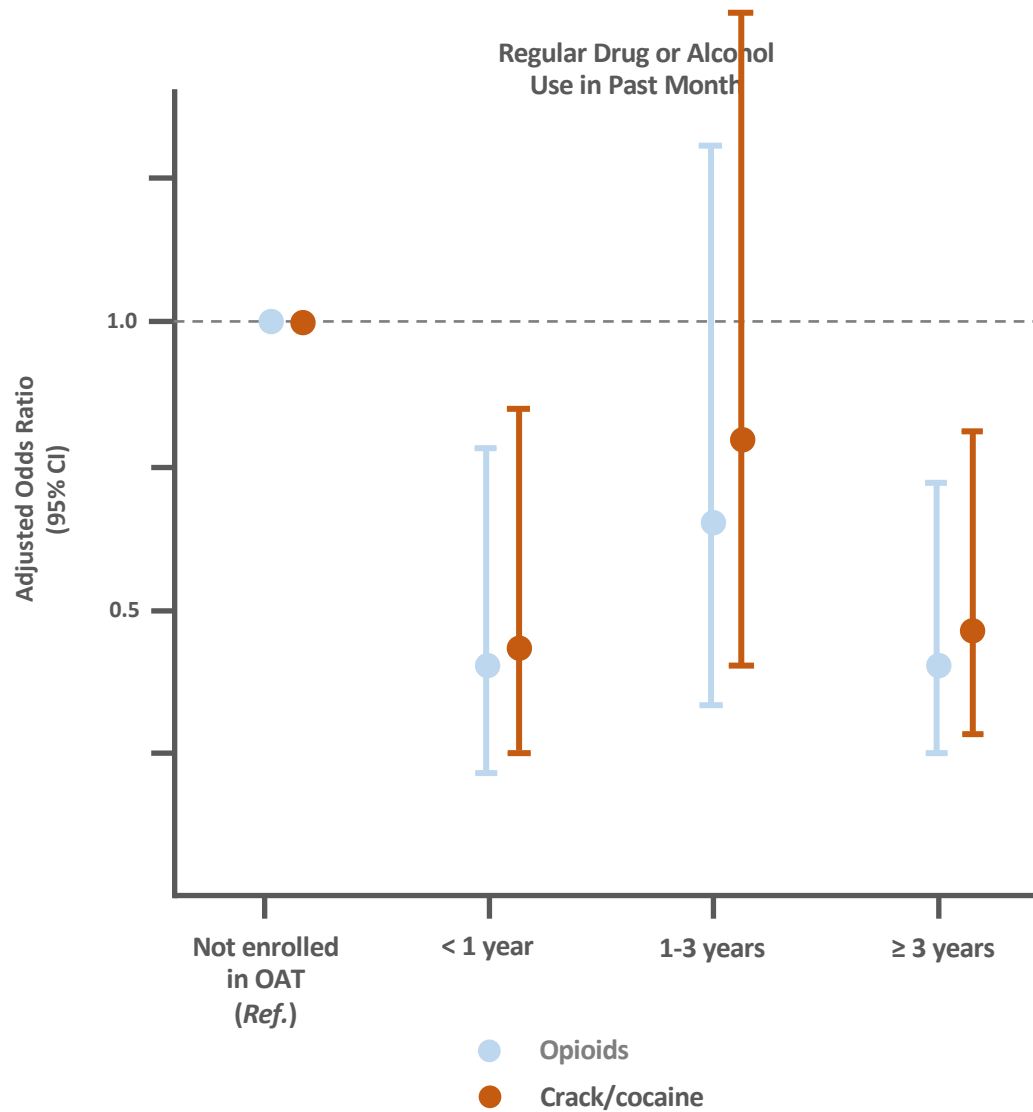
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RESULTS

Regular Drug or Alcohol Use in Past Month

Adjusted Odds Ratio (95% CI)

- Opioids
- Crack/cocaine

X-axis: Not enrolled in OAT (*Ref.*), < 1 year, 1-3 years, ≥ 3 years

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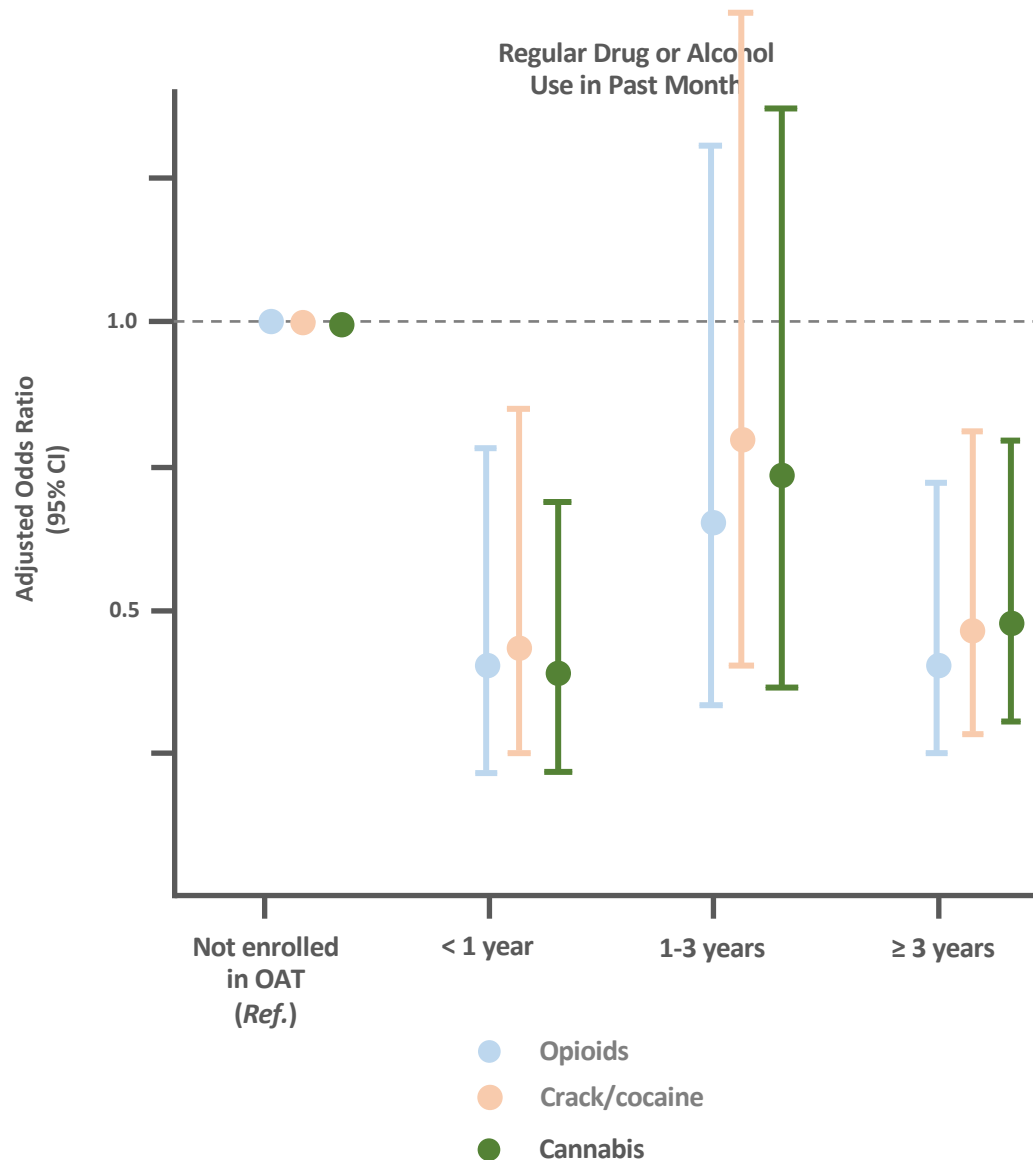[‡] *variable measured in past 6 months*

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Regular Drug or Alcohol Use in Past Month

Legend: Opioids, Crack/cocaine, Cannabis

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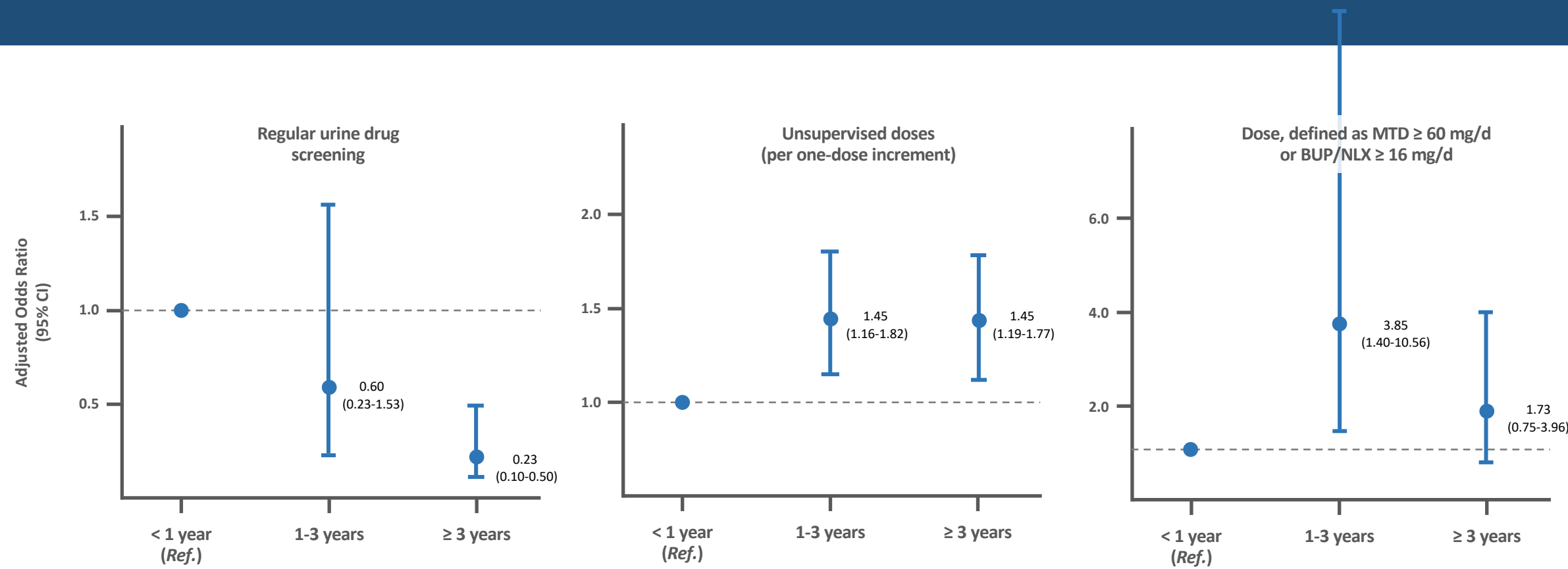|	< 1 year	1 – 3 years		≥ 3 years	
	Ref.	AOR	95% CI	AOR	95% CI
Regular urine drug screening	Ref.	0.60	[0.23-1.53]	0.23	[0.10-0.50]
Unsupervised doses (per one-dose increment)	Ref.	1.45	[1.16-1.82]	1.45	[1.19-1.77]
Dose, defined as MTD ≥ 60 mg/d or BUP/NLX ≥ 16 mg/d	Ref.	3.85	[1.40-10.56]	1.73	[0.75-3.96]

Table 3 : Multinomial multivariate logistic regression of OAT programme characteristics on retention in treatment, comparing the 1-3 years and ≥ 3 years categories vs. < 1 year (Ref.)

AOR : adjusted odds ratio ; 95% CI : 95% confidence interval ; OAT : opioid agonist therapy ; MTD : methadone ; BUP/NLX : buprenorphine/naloxone
Only the final model is presented here : adjusted for age, gender, unstable housing, recent incarceration, and regular use of psychoactive substances

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RESULTS

Regular urine drug screening

Adjusted Odds Ratio (95% CI)

< 1 year (*Ref.*): 1.0
1-3 years: 0.60 (0.23-1.53)
≥ 3 years: 0.23 (0.10-0.50)

Unsupervised doses (per one-dose increment)

< 1 year (*Ref.*): 1.0
1-3 years: 1.45 (1.16-1.82)
≥ 3 years: 1.45 (1.19-1.77)

Dose, defined as MTD ≥ 60 mg/d or BUP/NLX ≥ 16 mg/d

< 1 year (*Ref.*)
1-3 years: 3.85 (1.40-10.56)
≥ 3 years: 1.73 (0.75-3.96)

Table 3 : Multinomial multivariate logistic regression of OAT programme characteristics on retention in treatment, comparing the 1-3 years and ≥ 3 years categories vs. < 1 year (Ref.)

	< 1 year	1 – 3 years		≥ 3 years	
	Ref.	AOR	95% CI	AOR	95% CI
Regular urine drug screening	Ref.	0.60	[0.23-1.53]	0.23	[0.10-0.50]
Unsupervised doses (per one-dose increment)	Ref.	1.45	[1.16-1.82]	1.45	[1.19-1.77]
Dose, defined as MTD ≥ 60 mg/d or BUP/NLX ≥ 16 mg/d	Ref.	3.85	[1.40-10.56]	1.73	[0.75-3.96]

AOR : adjusted odds ratio ; 95% CI : 95% confidence interval ; OAT : opioid agonist therapy ; MTD : methadone ; BUP/NLX : buprenorphine/naloxone
Only the final model is presented here : adjusted for age, gender, unstable housing, recent incarceration, and regular use of psychoactive substances

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DISCUSSION

- Among active PWID receiving OAT, high prevalence of long-term engagement in treatment was observed.

- In addition to sociodemographic and drug use factors, we identified treatment-related factors associated with greater treatment duration, suggesting a more flexible approach in OAT programmes may lead to longer retention in treatment.

- Due to the cross-sectional design of our study, findings need to be validated in longitudinal studies.

REFERENCES

1. Amiri S, Hirchak K, Lutz R, McDonell MG, McPherson SM, Roll JM, Amram O. Three-year retention in methadone opioid agonist treatment: A survival analysis of clients by dose, area deprivation, and availability of alcohol and cannabis outlets. *Drug Alc Depend.* 2018:193;63-68.

2. Bharat C, Larney S, Barbieri S, Dobbins T *et al.* The effect of person, treatment and prescriber characteristics on retention in opioid agonist treatment : a 15-year retrospective cohort study. *Addiction*. 2021. https://doi.org/10.1111/add.15514.

3. Bruneau J, Ahamad K, Goyer ME et al. Management of opioid use disorders: a national clinical practice guideline. CMAJ. 2018.

4. Deck D, Carlson MJ. Retention in publicly funded methadone maintenance treatment in two Western States. J Behav Health Serv Res. 2005;32(1):43-60.

5. Degenhardt L, Grebely J, Stone J, Hickman M, Vickerman P, Marshall BDL et al. Global patterns of opioid use and dependence : harms to populations, interventions, and future action. *Lancet*. 2019; 394:1560-79.

6. Langendam MW, Van Haastrecht HJ, Van Ameijden EJ. The validity of drug users' self-reports in a non-treatment setting: prevalence and predictors of incorrect reporting methadone treatment modalities. *International Journal of Epidemiology*. 1999;28(3):514-20.

7. Manhapra A, Agbese E, Leslie DL, Rosenheck RA. Three-Year Retention in Buprenorphine Treatment for Opioid Use Disorder Among Privately Insured Adults. *Psychiatr Serv*. 2018;69(7):768-776.

8. Piske M, Zhou H, Min JE, Hongdilokkul N, Pearce LA, Homayra F, Socias ME, McGowan G, Nosyk B. The cascade of care for opioid use disorder: a retrospective study in British Columbia, Canada. *Addiction.* 2020 ; 115(8) : 1482-1493.

9. Platt L *et al.* Needle and syringe programmes and opioid substitution therapy for preventing HCV transmission among people who inject drugs : findings from a Cochrane Review and meta-analysis. *Addiction*. 2018;113(3):545-563.

10. Sordo L., Barrio G., Bravo M. J., Indave B. I., Degenhardt L., Wiessing L., et al. Mortality risk during and after opioid substitution treatment: systematic review and meta-analysis of cohort studies. *BMJ*. 2017; 357:j1550.

11. Timko C., Schultz N. R., Cucciare M. A., Vittorio L., Garrison-Diehn C. Retention in medication-assisted treatment for opiate dependence: a systematic review. *J Addict Dis* 2016; 35: 22–35.

12. Vogel M, Dursteler KM, Walter M, Herdener M, Nordt C. Rethinking retention in treatment of opioid dependence – The eye of the beholder. *Int J Drug Policy* 2017;39:109-113.
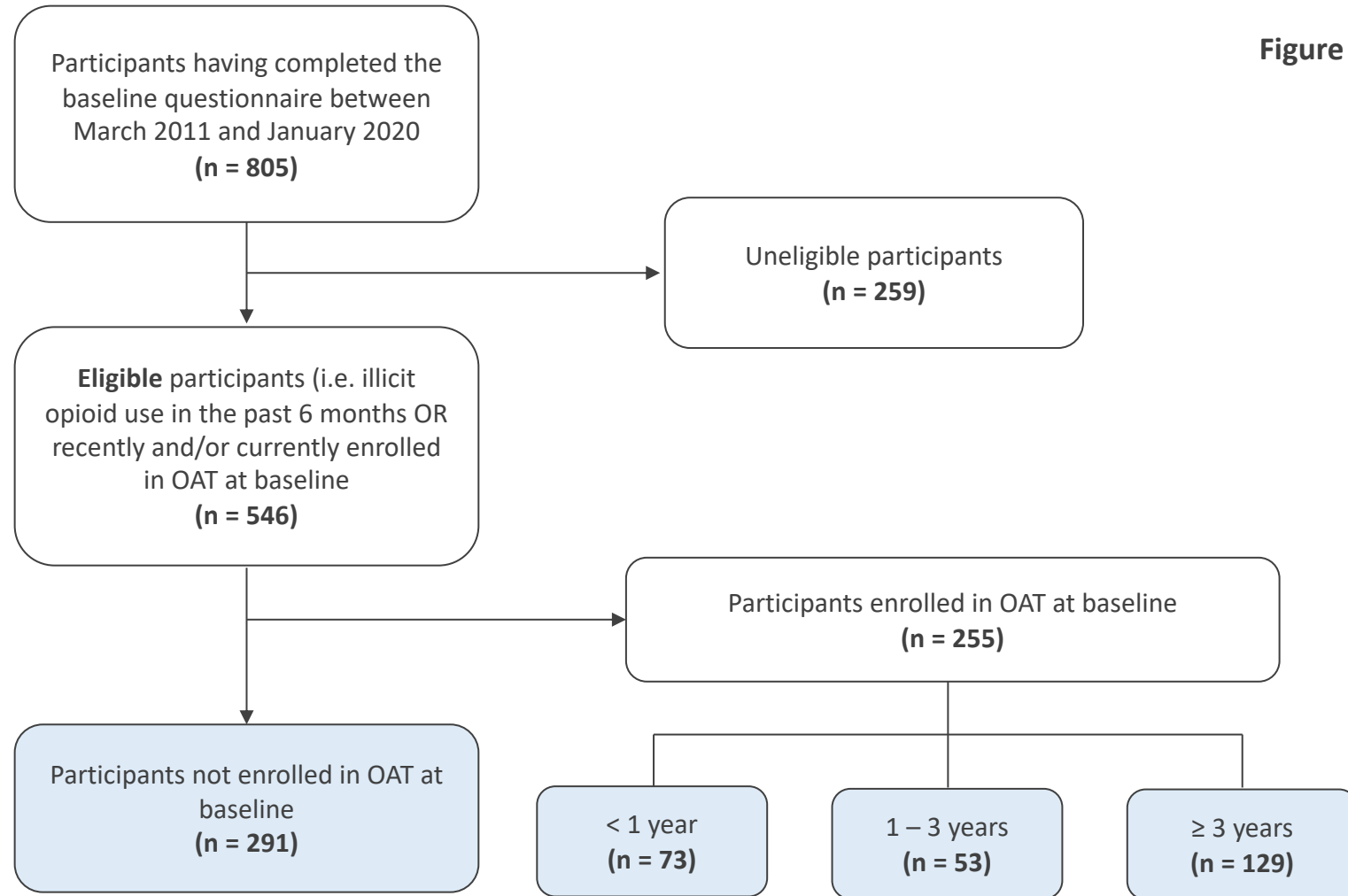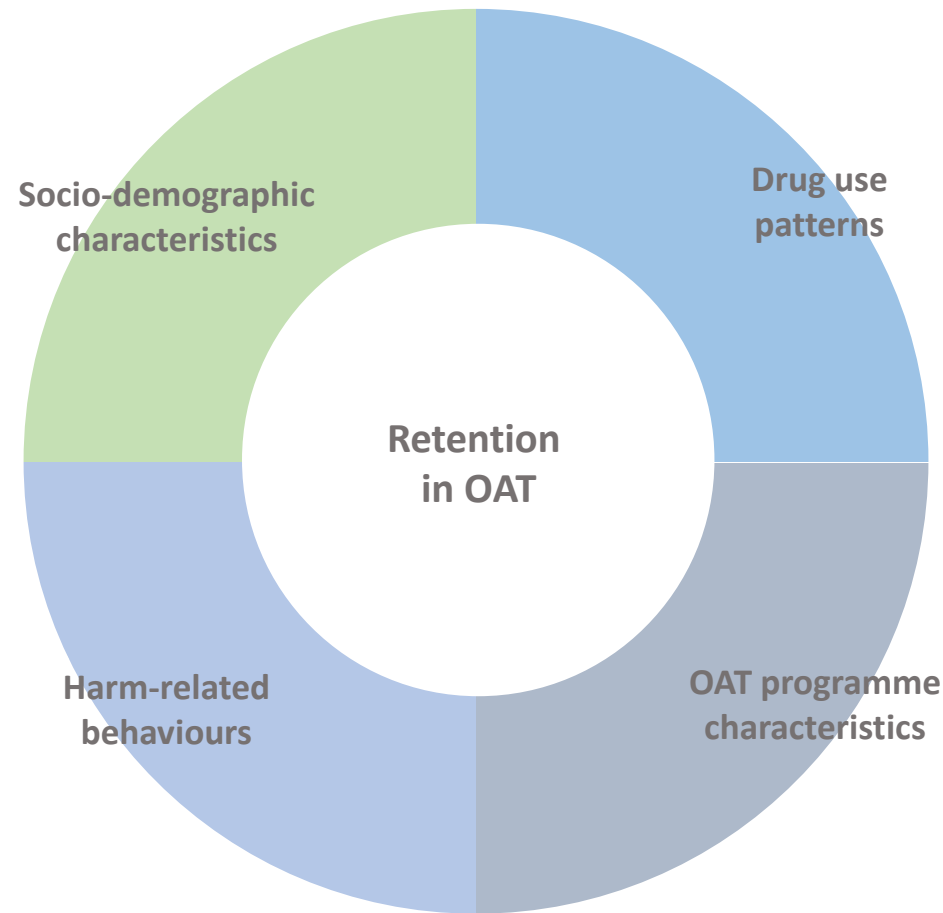
Figure 1 : Study Population Flowchart

SUPPLEMENTARY DATA : STUDY VARIABLES

SOCIO-DEMOGRAPHIC CHARACTERISTICS
- Gender
- Age
- Marital status
- Stable source of income
- Education level
- Stable housing
- Recent incarceration

DRUG USE PATTENS
- Type of psychoactive substance used : **alcohol**, **opioids**, *crack*/**cocaine**, **amphetamines**, **benzodiazepines**, **cannabis**
- Frequency of drug use in past month

HARM-RELATED BEHAVIOURS
- Injecting daily or more often
- Sharing syringes
- Sharing injection / inhalation material
- Binge use
- Sex work

OAT PROGRAMME CHARACTERISTICS
- Dose
- Unsupervised doses
- Regular urine drug screening

Socio-demographic characteristics

Drug use patterns

Retention in OAT

Harm-related behaviours

OAT programme characteristics

Figure 2 : Study Variables Included in the Multinomial Multivariate Logistic Regression Analyses

SUPPLEMENTARY DATA : DESCRIPTIVE STATISTICS

Table 3 : Baseline characteristics of eligible participants according to their enrollment in OAT and the duration of the enrollment in OAT, HEPCO Cohort, March 10th 2011 to January 29th 2020 (*n* = 546)

Variables	Not enrolled in OAT *n* = 291	Enrolled in OAT (*n* = 255)		
		< 1 year (*n* = 73)	1 – 3 years (*n* = 53)	≥ 3 years (*n* = 129)
Sociodemographic Characteristics				
Gender, female, no. (%)	55 (18.9)	17 (23.3)	7 (13.2)	39 (30.2)
Age, years, mean ± SD	37.1 ± 10.9	34.7 ± 8.5	36.1 ± 8.4	39.7 ± 8.8
Living with partner, no. (%)	41 (14.1)	9 (12.3)	6 (11.3)	24 (18.6)
Completed highschool or higher, no. (%)	161 (55.7)	42 (57.5)	35 (66.0)	82 (63.6)
Receiving welfare, no. (%)	218 (75.2)	63 (86.3)	42 (79.2)	106 (82.2)
Stable income source, no. (%)	*265 (91.1)*	*41 (56.1)*	*26 (49.1)*	*67 (51.9)*
Income ≥ 1000 $ in past month, no. (%)	*144 (49.5)*	*9 (12.3)*	*6 (11.3)*	*24 (18.6)*
Stable housing[†], no. (%)	160 (55.6)	51 (69.9)	39 (73.6)	105 (81.4)
Recent incarceration[‡], no. (%)	59 (20.5)	18 (24.7)	13 (24.5)	23 (17.8)
HIV serologic status, positive, no. (%)	13 (4.5)	3 (4.1)	2 (3.8)	5 (3.9)
HCV-RNA status, positive, no. (%)	84 (28.9)	28 (38.4)	20 (37.7)	47 (36.4)
Regular Drug or Alcohol Use in Past Month				
Alcohol, no. (%)	64 (22.0)	5 (6.8)	9 (17.0)	25 (19.4)
Opioids, no. (%)	199 (68.4)	36 (49.3)	26 (49.1)	59 (45.7)
Crack/cocaine, no. (%)	136 (46.7)	22 (30.1)	18 (34.0)	36 (27.9)
Amphetamines, no. (%)	40 (13.7)	7 (9.6)	4 (7.5)	11 (8.5)
Benzodiazepines, no. (%)	40 (13.7)	10 (13.7)	9 (17.0)	23 (17.8)
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Harm-related Behaviours				
Number of injection days per month[†], median [Q1-Q3]	17 [3-30]	10 [1-27]	10 [1-17]	5 [1-20]
Daily or more frequent injection frequency, no. (%)	101 (34.8)	10 (13.7)	5 (9.4)	23 (18.0)
Sharing needles[†], no. (%)	36 (12.5)	10 (13.9)	3 (5.7)	15 (11.6)
Sharing injection/inhalation material[†], no. (%)	73 (25.3)	14 (19.4)	5 (9.4)	15 (11.7)
Binge use[†], no. (%)	50 (17.2)	14 (19.2)	4 (7.5)	8 (6.2)
Sex work[†], no. (%)	13 (4.5)	7 (9.6)	1 (1.9)	13 (10.1)

[†] variable measured in past 3 months
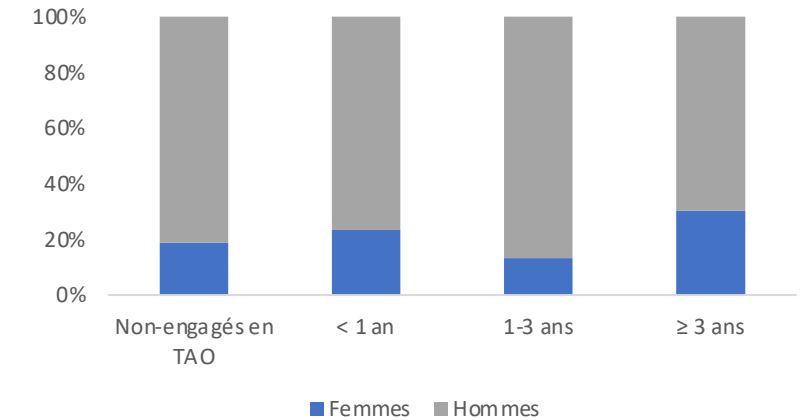[‡] variable measured in past 6 months

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† variable measured in past 3 months
‡ variable measured in past 6 months

Figure 4 : Gender distribution according to self-reported duration of enrollment in OAT

SUPPLEMENTARY DATA : DESCRIPTIVE STATISTICS

Table 3 : Baseline characteristics of eligible participants according to their enrollment in OAT and the duration of the enrollment in OAT, HEPCO Cohort, March 10th 2011 to January 29th 2020 (*n* = 546)

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Sex work†, no. (%)	13 (4.5)	7 (9.6)	1 (1.9)	13 (10.1)

† variable measured in past 3 months
‡ variable measured in past 6 months

Figure 4 : Gender distribution according to self-reported duration of enrollment in OAT
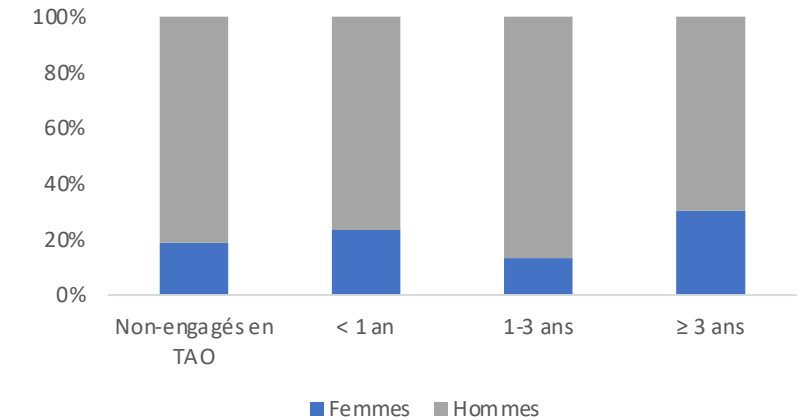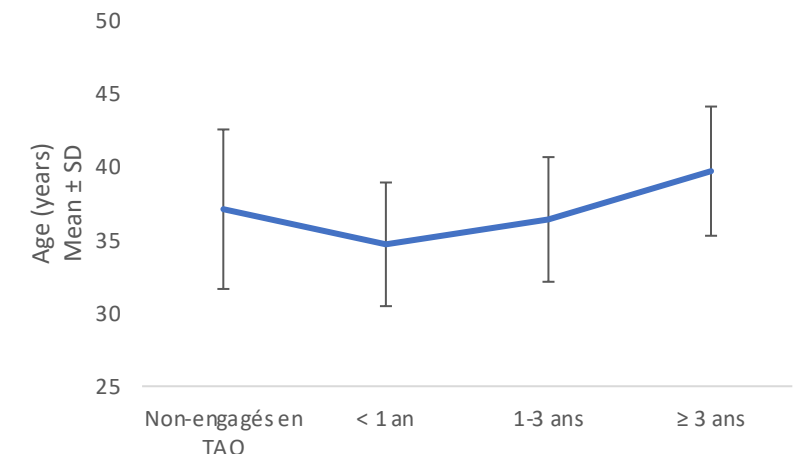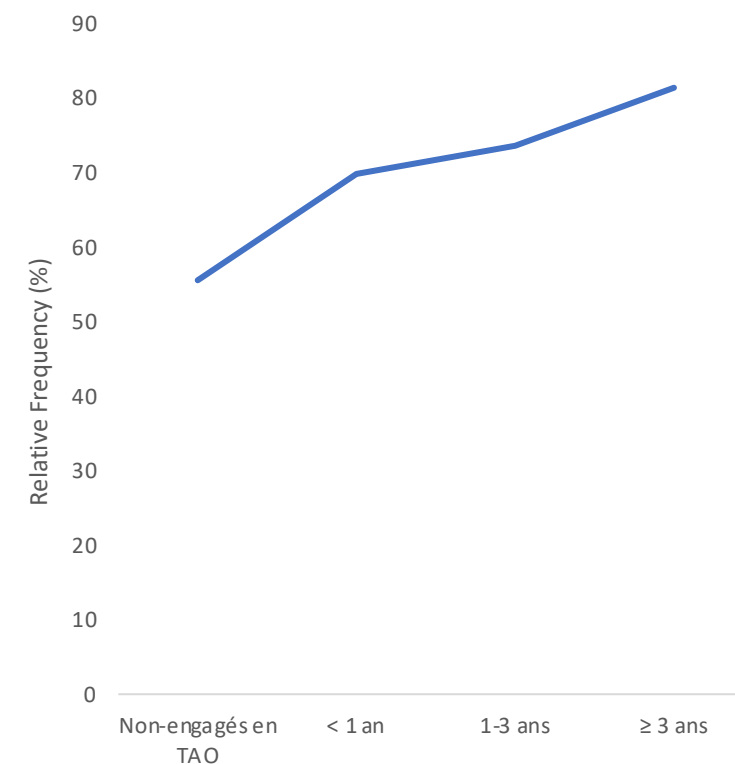

■ Femmes   ■ Hommes

Figure 5 : Age (years) according to self-reported duration of enrollment in OAT

SUPPLEMENTARY DATA : DESCRIPTIVE STATISTICS

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Binge use[†], no. (%)	50 (17.2)	14 (19.2)	4 (7.5)	8 (6.2)
Sex work[†], no. (%)	13 (4.5)	7 (9.6)	1 (1.9)	13 (10.1)

[†] variable measured in past 3 months
[‡] variable measured in past 6 months

Figure 6 : Housing stability according to self-reported duration of enrollment in OAT

SUPPLEMENTARY DATA : DESCRIPTIVE STATISTICS

Table 3 : Baseline characteristics of eligible participants according to their enrollment in OAT and the duration of the enrollment in OAT, HEPCO Cohort, March 10th 2011 to January 29th 2020 (n = 546)

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Living with partner, no. (%)	41 (14.1)	9 (12.3)	6 (11.3)	24 (18.6)
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Harm-related Behaviours				
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Sex work[†], no. (%)	13 (4.5)	7 (9.6)	1 (1.9)	13 (10.1)

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Figure 7 : Regular drug and alcohol use according to self-reported duration of enrollment in OAT