

# Life chaos, social support, and subsequent emergency department use among PWID in Québec, Canada

Stine Bordier Høj<sup>1</sup>, Nanor Minoyan<sup>1,2</sup>, Sarah Larney<sup>1,3</sup>, Julie Bruneau<sup>1,3</sup>

<sup>1</sup> Université de Montréal Hospital Research Centre; <sup>2</sup> Department of Social and Preventive Medicine, Université de Montréal; <sup>3</sup> Department of Family and Emergency Medicine, Université de Montréal.  
Contact: stine.hoj.chum@ssss.gouv.qc.ca

## Background

- Chaotic life circumstances and inadequate social support may impede navigation of health services and foster reliance on permeable settings such as emergency departments (ED)
- We examined life chaos and social support as potential predictors of subsequent ED use among people who inject drugs (PWID) in the province of Québec, Canada**

## Data collection

- Data were from the Virtual Cascade of Care Cohort (VCCC)
- Eligibility criteria were: age  $\geq 18$  years, history of injection drug use (lifetime), recent illicit drug or heavy alcohol use (past 6m)
- Participants were recruited via community-based harm reduction services in three cities (Montréal, Trois-Rivières, Sherbrooke) between April 2018 to January 2019
- An interviewer-administered questionnaire captured measures of life chaos (6 items)<sup>1</sup> and social support (10 items)<sup>2,3</sup> as well as demographic, social stability, and substance use indicators
- Data on ED use in the six months following questionnaire completion (including associated ICD-10 major diagnostic codes) were obtained via administrative data linkage.

## Data analysis

- Descriptive statistics were computed to describe the study participants and their ED use, overall and by setting (Table 1)
- Life chaos and social support scales were assessed for internal consistency using inter-item correlations ( $>0.15$ ), corrected item-total correlations ( $>0.30$ ), Cronbach alpha<sup>4</sup>
- A priori factor structure was tested via confirmatory factor analysis using standard model fit indices;<sup>5</sup> adjustments to improve fit were implemented if supported by theory
- Estimated factor scores representing life chaos and social support were exported from a combined model (Figure 1) for use in subsequent analyses
- Univariable and multivariable negative binomial regression models estimated associations of (i) life chaos and (ii) social support with total ED visit count (Table 2, Figure 2)
- Analyses were stratified by setting (Montréal vs. Other) due to evidence for effect modification (i.e., interactions with  $p < 0.10$ )

## Key findings

- Half of participants in Montréal and 39% of those in other settings visited the ED within six months
- ED visitation was most prevalent for diagnostic codes indicating mental/behavioural problems (14%), traumatic injury (8.8%) and poisonings (6.8%)
  - Montréal participants visited the ED more often and were more likely to visit for 'unclassified signs and symptoms' (23% vs. 11%) and 'factors influencing health status & contact with services' (15% vs. 3%)
- Life chaos and social support were associated with ED visit count in Montréal but not other settings:
  - Adjusting for age, gender, and Indigenous identity a 1SD increase in life chaos / social support was associated with a 46% increase / 32% decrease in the rate of ED visitation, respectively
  - Associations were attenuated after adjustment for social stability and substance use indicators
- Other variables independently associated with ED visit count were age, opioid agonist treatment (Montréal:  $p < 0.05$ ), homelessness, incarceration (Montréal:  $p < 0.10$ ) and hazardous alcohol use (Other settings:  $p < 0.10$ ).

Table 1: (a) Sample characteristics and (b) Emergency department use, overall and by setting

Sample characteristics	Total (n=182)	Montréal (n=69)	Other (n=113)
Age: Median (IQR)	44 (34 – 52)	41 (32 – 51)	45 (36 – 53)
Male gender identity	75%	83%	70%
Indigenous identity	15%	15%	16%
Past-year incarceration	37%	51%	28%
Past-year homelessness	57%	81%	42%
Has a family doctor	44%	48%	41%
Recent injection (p6m)	68%	94%	52%
Opioid agonist treatment (p3m)	23%	30%	18%
Recent overdose (p3m)	7.7%	10%	6.1%
Daily injection (pm)	25%	48%	11%
Stimulant use (pm)	79%	88%	72%
Hazardous alcohol use <sup>1</sup>	41%	30%	47%

Sample excludes 13/195 participants not linked to administrative databases. pm/p3m/p6m = past month/three months/six months. <sup>1</sup> AUDIT-C score  $\geq 4$

Emergency department use	Total (n=182)	Montréal (n=69)	Other (n=113)
Total ED visits: Median (IQR)	0 (0 – 2)	1 (0 – 3)	0 (0 – 1)
Any ED visit	43%	51%	39%

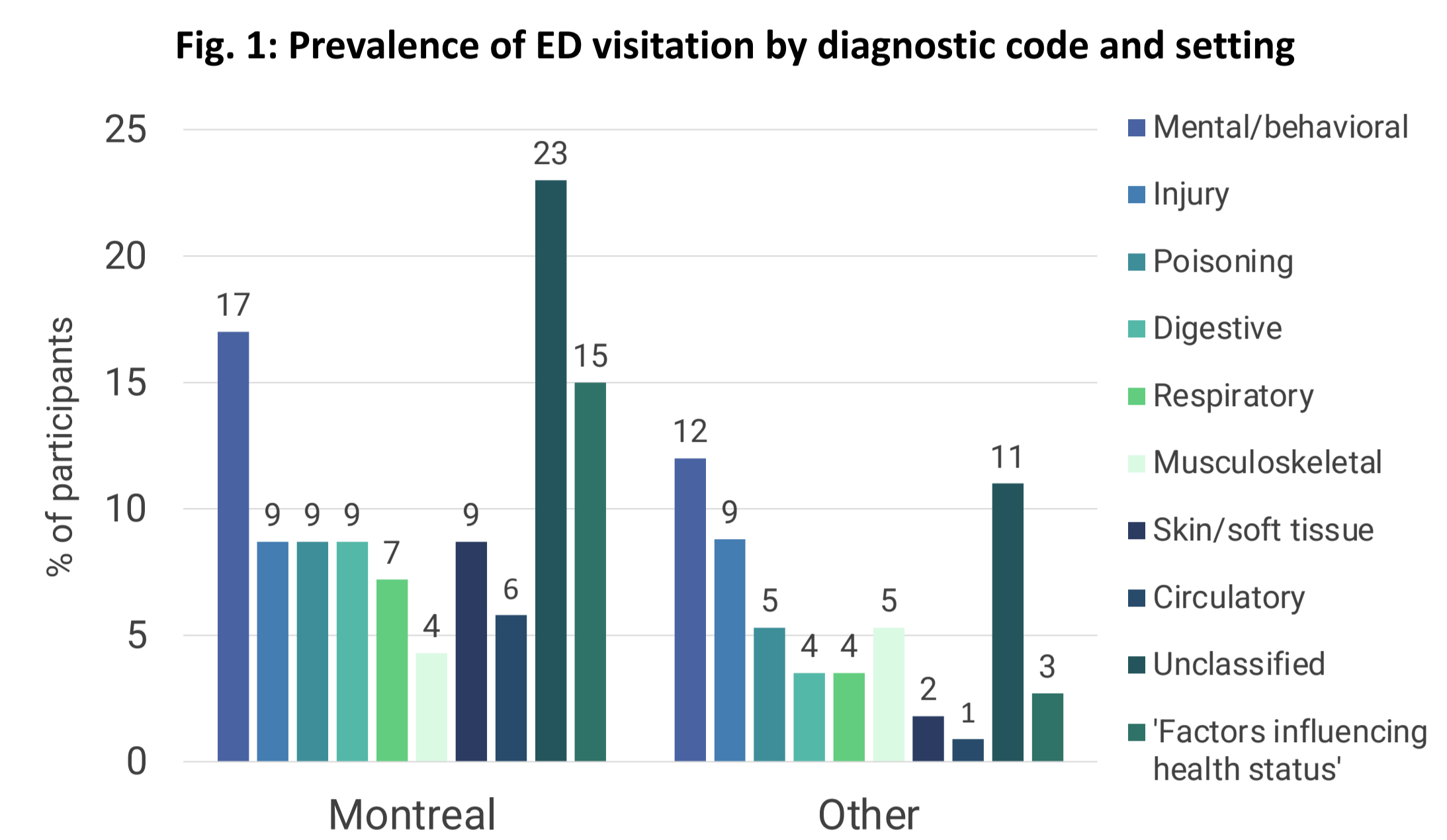
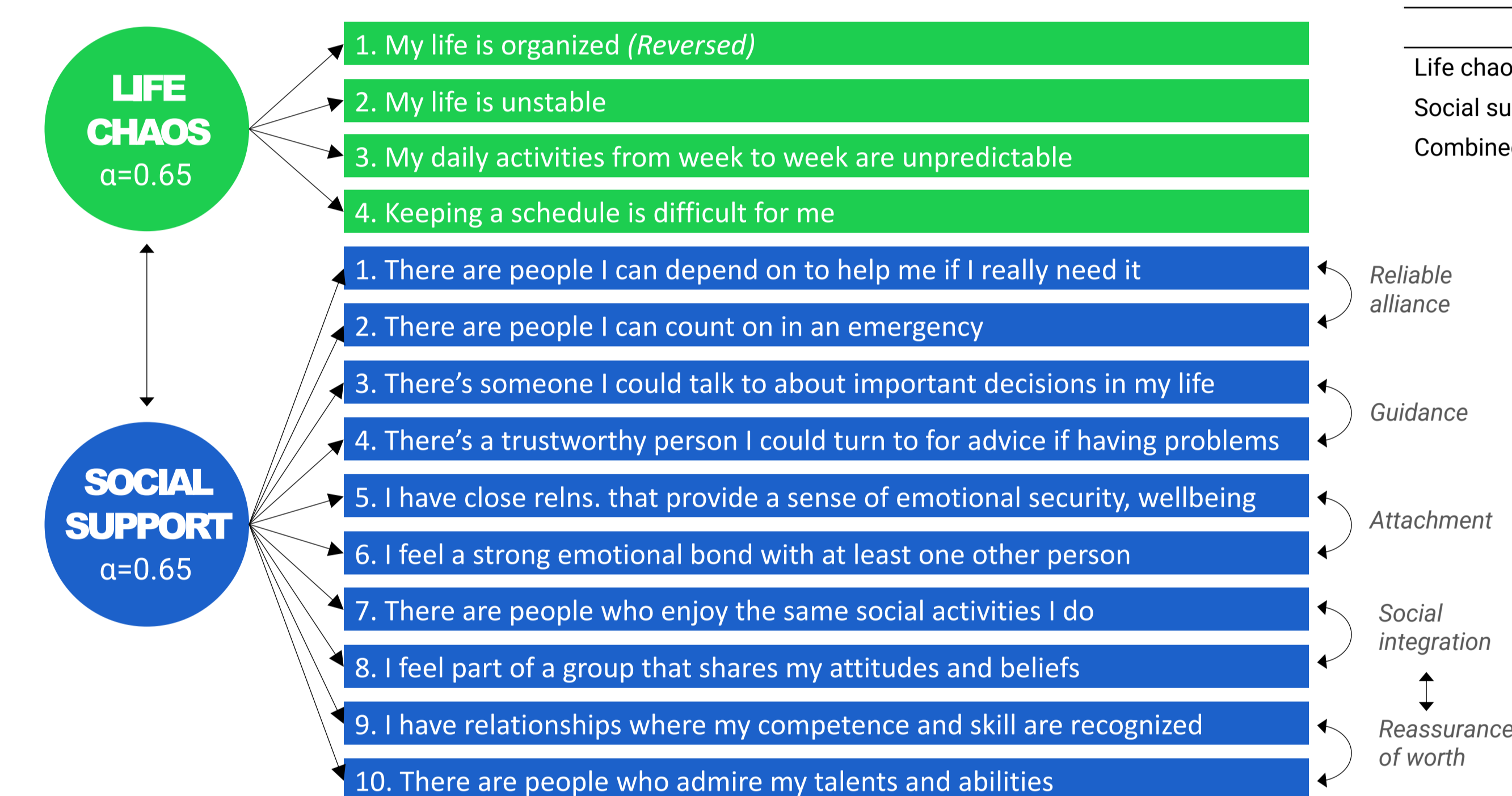


Figure 1: Life chaos and social support: Measurement model



	Model fit statistics				
	$\chi^2$ (df)	RMSEA	CFI	TLI	SRMR
Life chaos	4.17 (2)	.075	.991	.972	.021
Social support	42.8 (26)	.058	.992	.985	.026
Combined	94.8 (67)	.046	.987	.982	.041

Life chaos was independently associated with past-year homelessness, hazardous alcohol use, daily injection, stimulant use, past-year unmet healthcare needs.

Social support was independently associated with age, recent overdose, past-year unmet healthcare needs.

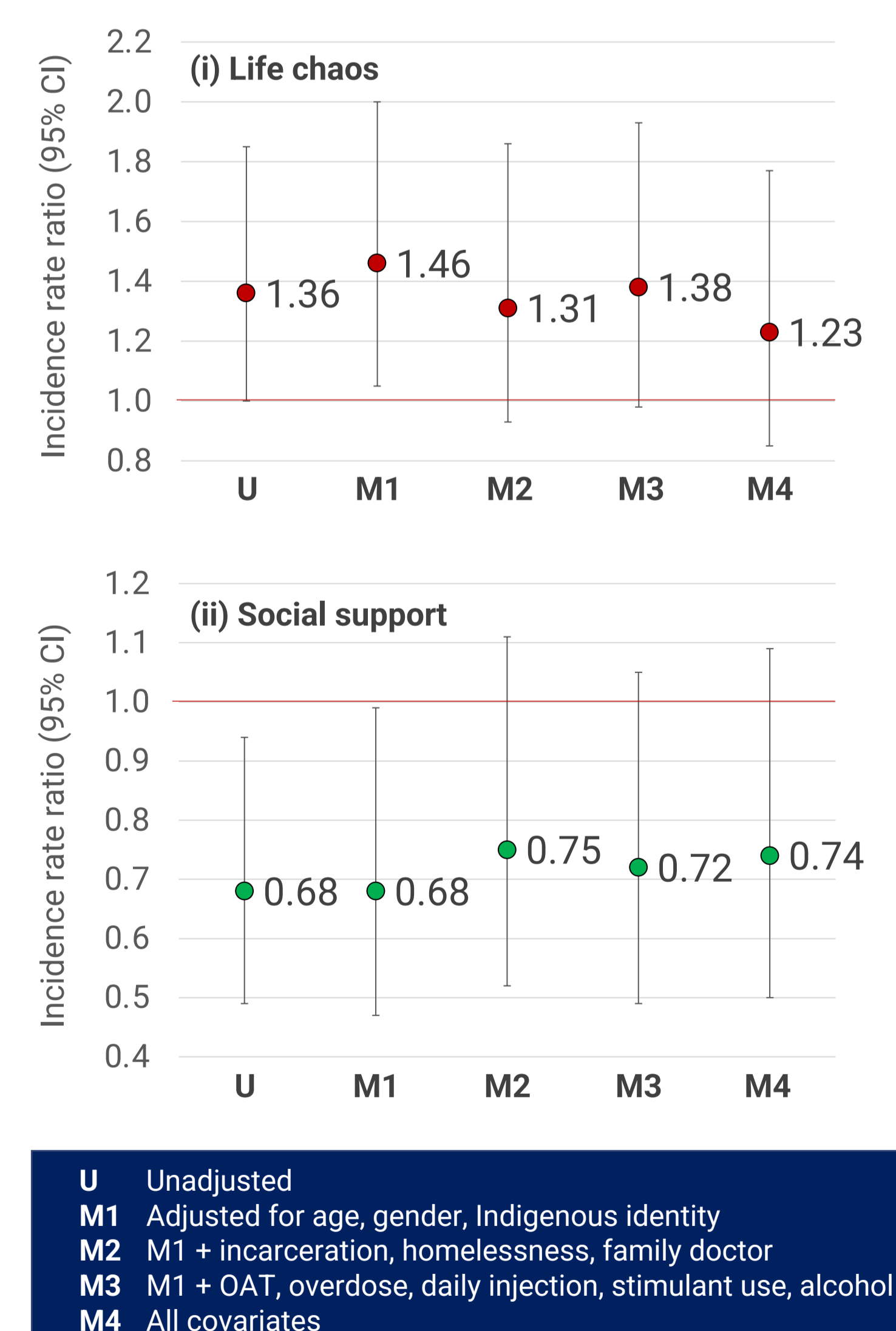
(Separate analysis, data not shown)

Table 2: Unadjusted associations with ED visit count, overall and by setting

	Total IRR [95% CI]	Montréal IRR [95% CI]	Other setting IRR [95% CI]
Life chaos *	1.23 [1.02–1.49]	1.36 [1.00–1.85]	0.99 [0.72–1.15]
Social support *	0.75 [0.60–0.92]	0.68 [0.49–0.94]	0.99 [0.77–1.28]
Setting outside Montréal	0.42 [0.29–0.61]	NA	NA
Age *	1.05 [0.88–1.26]	1.35 [1.01–1.80]	0.91 [0.72–1.15]
Male gender	1.63 [1.04–2.56]	1.09 [0.52–2.28]	1.89 [1.03–3.46]
Indigenous identity	0.86 [0.51–1.45]	1.14 [0.52–2.49]	0.57 [0.26–1.23]
Past-year incarceration	1.80 [1.23–2.62]	1.44 [0.83–2.52]	1.60 [0.93–2.76]
Past-year homelessness	1.99 [1.35–2.93]	1.66 [0.78–3.51]	1.40 [0.84–2.34]
Has a family doctor	1.02 [0.70–1.47]	1.41 [0.81–2.46]	0.51 [0.30–0.88]
Recent injection (p6m)	1.96 [1.27–3.02]	1.16 [0.35–3.90]	1.37 [0.81–2.32]
Opioid agonist treatment (p3m)	0.55 [0.34–0.88]	0.41 [0.21–0.78]	0.65 [0.32–1.32]
Recent overdose (p3m)	1.08 [0.55–2.13]	0.64 [0.24–1.69]	1.77 [0.68–4.62]
Daily injection (pm)	1.49 [0.99–2.25]	1.15 [0.66–2.01]	0.68 [0.28–1.61]
Stimulant use (pm)	1.74 [1.08–2.83]	1.25 [0.51–3.05]	1.58 [0.86–2.89]
Hazardous alcohol use <sup>1</sup>	1.47 [1.01–2.13]	1.54 [0.85–2.78]	2.14 [1.26–3.62]

Sample excludes 13/195 participants not linked to administrative databases. pm/p3m/p6m = past month/three months/six months. <sup>1</sup> AUDIT-C score  $\geq 4$ . \* X-standardized estimates, interpreted as the expected change in the rate of ED visits for a one standard deviation increase in the independent variable. IRR = Incidence rate ratio.

Figure 2: Adjusted associations with ED visit count (Montréal)



U Unadjusted  
M1 Adjusted for age, gender, Indigenous identity  
M2 M1 + incarceration, homelessness, family doctor  
M3 M1 + OAT, overdose, daily injection, stimulant use, alcohol  
M4 All covariates

## Conclusion

- ED visitation and associated factors differed according to recruitment setting / sample characteristics
- Life chaos and social support were associated with the number of subsequent ED visits among PWID in downtown Montréal, with effects attenuated by adjustment for social stability and substance use indicators
- Findings highlight a need for accessible sources of primary care and suggest interventions to address social challenges (and their underlying causes) could reduce reliance on emergency departments in urban centers