Predictors of heroin abstinence in opiate substitution therapy in heroin-only users and dual users of heroin and crack*

Felicia Heidebrecht[1], Mary Bell MacLeod[2], Lynne Dawkins[1]

[1] London South Bank University, [2] Camden and Islington NHS Foundation Trust

Background

Opiate substitution therapy (OST) for heroin dependence is recognized across the world as effective for retention in treatment and reduction in illicit drug use. The high prevalence of crack/cocaine use among heroin users accessing OST in the UK has been documented for over a decade and it is on the rise. It has been shown that dual users have poorer treatment outcomes when compared to heroin-only users, however, the majority of studies have considered dual users as a homogeneous group.

Aim

To analyse predictors of heroin abstinence in opiate substitution therapy (OST) based on frequency of crack use and its interactions with other predictors in a clinical non-experimental setting.

Methods

Design: Retrospective study.
Setting: A community drug service in London, UK.
Participants: Clinical records of 325 clients starting OST between 2010 and 2014 (197 methadone and 128 buprenorphine).
Measurements: Logistic regression models (a general model* and separate models for methadone and buprenorphine).
Outcome: heroin abstinence at one year after treatment start (or at the date of transfer to another service)
Predictors: duration of drug use, amount of heroin, crack and alcohol use, frequency of crack and alcohol use (no use/occasional use/daily use), housing, employment, use of other drugs, mental health, route of administration, OST medication type and dose.

---

*Most of the significant predictors in the general model were found significant only in the buprenorphine but not in the methadone model, suggesting that a general model has little predictive value

Results – Sample characteristics

Age – 37.8 ± 9.4 years;
Gender (%) – 76.6/33.4 male/female;
Sexuality (%) – 89.5/4.9/5.6 heterosexual/homosexual/other;
Nationality (%) – 68/10.5/2.5/19 UK/Italy/Poland/Other;
Ethnicity (%) – 35.8/35.2/12.7/16.3 White British/White Other/Black or Black British/Other;
Frequency of crack use (%) – 22.5/42.5/35 none/occasional/daily;
Frequency of alcohol use (%) – 54/27.5/18.5 none/occasional/daily;
Using other drugs (mainly cannabis) – 44.3%
Having a mental health condition (mainly depression) – 46.6%
Duration of drug use – 13.0 ± 8.7 years;
Route of administration (%) – 49.6/50.4 smokers/injectors
Medication choice (%) – 60.6/39.4 methadone/buprenorphine
Dual users of heroin and crack – 77.5%

Significant differences:

	Methadone	Buprenorphine
Heroin use (g/week):	5.5 ±-3.4	4.4 ± 3.7
Smokers (%):	45.4	56.3
Employed (%):	22.7	41.4
Stable housing (%):	65.5	80.5
Abstinent at follow up (%):	21.2	38.3

* This work has been accepted for publication in *Addictive Behaviours* journal (in press)

Results – Methadone sample

Logistic regression predicting heroin use:

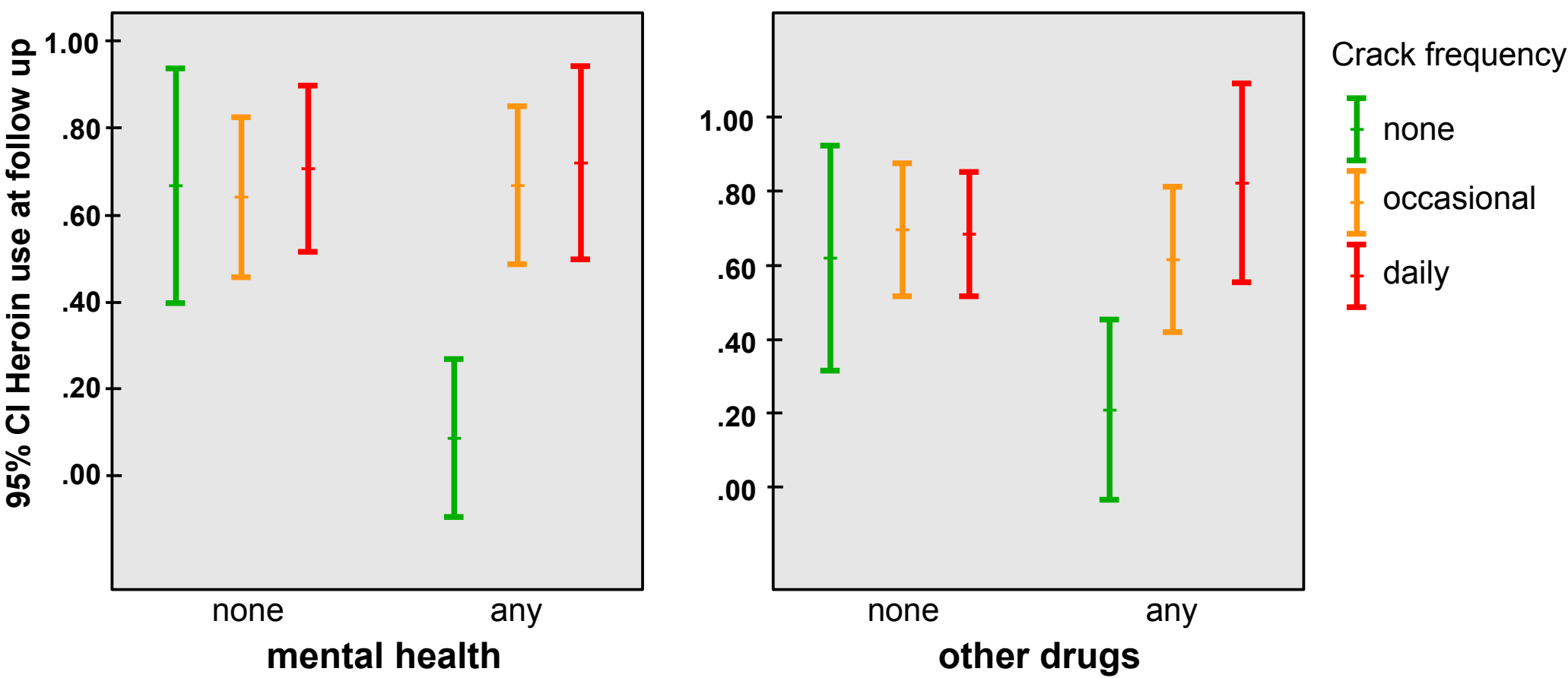|	B	S.E.	Wald	df	P	OR	95% CI for OR	
							Lower	Upper
Crack frequency			6.448	2	.040			
occasional	-.157	.426	.135	1	.713	.855	.371	1.971
daily	.965	.512	3.554	1	.059	2.625	.962	7.160
Constant	1.368	.189	52.233	1	.000	3.928		

- 78.8% of participants were using heroin at follow up
- none of the considered predictors were significant (daily crack use nearly significant)

Results – Buprenorphine sample

Logistic regression predicting heroin use:

	B	S.E.	Wald	df	P	OR	95% CI for OR	
							Lower	Upper
Medication dose	-0.17	0.06	7.49	1	0.01	0.85	0.75	0.95
Heroin use	0.27	0.10	6.47	1	0.01	1.31	1.06	1.60
Other drugs	-0.80	0.58	1.93	1	0.16	0.45	0.14	1.39
Mental health	-1.53	0.64	5.66	1	0.02	0.22	0.06	0.76
Crack frequency			10.77	2	0.00			
occasional	2.22	0.83	7.10	1	0.01	9.17	1.80	46.78
daily	3.14	0.96	10.76	1	0.00	23.02	3.53	149.98
Alcohol frequency			5.06	2	0.08			
occasional	0.28	0.50	0.31	1	0.58	1.32	0.50	3.54
daily	1.80	0.80	5.06	1	0.02	6.04	1.26	28.92
Crack frequency x Other drugs			6.74	2	0.03			
occasional x Other drugs	1.90	1.47	1.66	1	0.20	6.68	0.37	119.59
daily x Other drugs	4.05	1.63	6.20	1	0.01	57.49	2.37	1396.46
Crack frequency x Mental health			8.13	2	0.02			
occasional x Mental health	4.67	1.75	7.07	1	0.01	106.31	3.41	3313.38
daily x Mental health	5.14	1.84	7.78	1	0.01	170.99	4.61	6339.47
Constant	1.06	0.64	2.70	1	0.10	2.88		

Graphic representation of significant interactions:

- 61.7% of participants were using heroin at follow up

Conclusions

In a naturalistic setting:
- **For clients choosing methadone no significant predictors of heroin abstinence were found**
- **For clients choosing buprenorphine lower doses of medication, higher amounts of baseline heroin use and daily alcohol use predicted heroin use at follow up; and no crack use predicted heroin abstinence at follow up only when occurring either with a mental health condition or the use of other drugs**

These findings suggest that addressing crack/cocaine use with clients presenting to services for heroin dependency could improve treatment outcomes.