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

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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

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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		

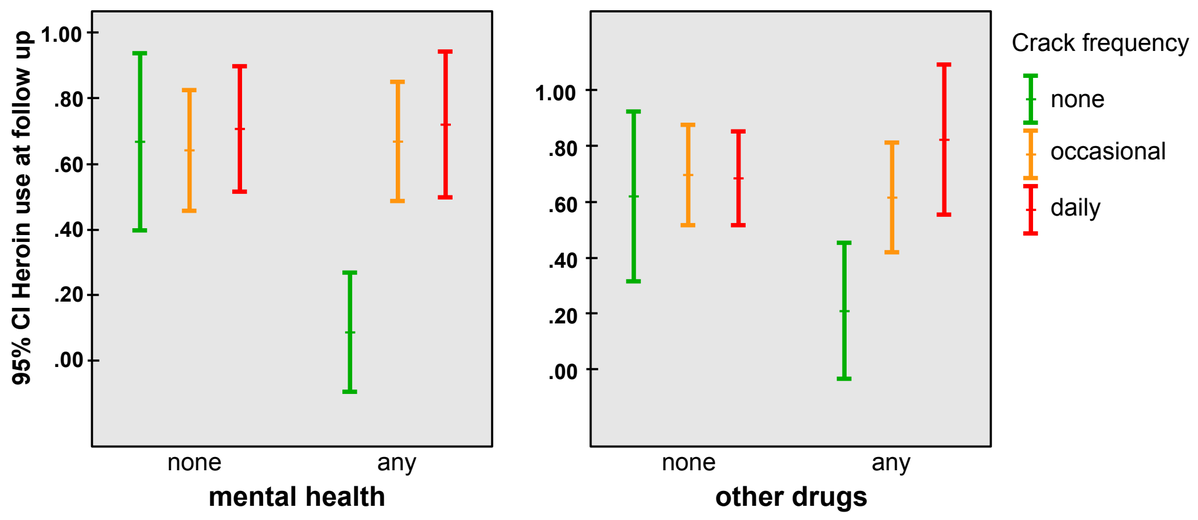
- 78.8% of participants were using heroin at follow up
- none of the considered predictors were significant (daily crack use nearly significant)

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.