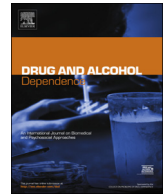




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Short communication

Correlates and subgroups of injecting drug use in UK gay and bisexual men: Findings from the 2014 Gay Men's Sex Survey

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ABSTRACT

Background: Evidence to understand which gay and bisexual men (GBM) inject drugs remains scant, especially in the UK. We describe correlates of last-year injecting in UK GBM, and characterise subgroups of GBM who inject drugs by types of drugs used.

Methods: Using data from the 2014 Gay Men's Sex Survey, an opportunistic internet-based survey conducted of GBM living in the UK, we examined via logistic regression correlates with any injecting of six drugs (amphetamine/speed, crystal methamphetamine, heroin, mephedrone, GHB/GBL, and ketamine) in the last year. We estimated latent class models to understand underlying subgroups of injecting drug use among GBM reporting injecting drug use in the last year.

Results: Injecting was most common in GBM who were of middle age, who were HIV seropositive, and who lived in London, and was significantly associated with sexual risk with multiple partners in the last year, whether steady or non-steady. Most GBM who engaged in injecting either injected crystal methamphetamine, mephedrone or both (class 1, chemsex, 88.6% of injectors), whereas a smaller group had a focus on opiates (class 2, opiate, 7.9%). A small but identifiable subgroup (class 3, eclectic, 3.5%) engaged in injecting across the range of drugs examined.

Conclusions: This is the first epidemiological analysis to describe subgroups of injecting, and to describe correlates of injecting drug use, in UK GBM. Implications for design of harm reduction services include a need to focus on injecting drug use beyond opiates, currently the focus of most harm reduction services.

1. Introduction

While drug use in gay and bisexual men (GBM) is consistently higher than in the general population (Lea et al., 2013; Melendez-Torres et al., 2016), injection drug use by GBM remains sparsely documented and poorly understood in the UK (Public Health England, 2016). This is despite increasing media attention from 2013 onwards (Kirby and Thornber-Dunwell, 2013; Shaw, 2017). Recent evidence from Australian GBM indicates a prevalence of drug injecting of 4.7% in the last six months, with lifetime prevalence of 10.6% (Bui et al., 2018), but epidemiological description of injecting drugs among UK GBM remains scant. While previous surveys document low levels of injection drug use among GBM in Europe (The EMIS Network, 2013), the emergence of 'chemsex', or the sexualised use of crystal methamphetamine, GHB, mephedrone and ketamine (Bourne et al., 2015a), has sparked concern about the current extent of injection drug use in this

population. Injecting use of chemsex drugs may be a particularly salient feature of high-risk sexual practices, given the use of these drugs to enhance sexual performance and increase the number of partners in a coital session (Bourne et al., 2015b), and we have previously described the relationship between chemsex drug use before sex and sexual risk at the level of the sexual encounter (Melendez-Torres et al., 2017). Major cross-sectional surveys of drug use by GBM have not been able to recruit enough GBM who inject drugs for comparison (Sewell et al., 2017). Data from the Unlinked and Anonymous Monitoring survey of people who inject drugs compared GBM and non-GBM among men who inject drugs and found that GBM were more likely to have recently begun injecting and to engage in high-risk sexual practices; however, this survey was unable to describe patterns within GBM who inject drugs (Glass et al., 2017). Not all injection drug use may be related to sex, and different profiles of injection drug use may exist among GBM. We present an observational epidemiological study based on cross-

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Table 1
Correlates with last-year injecting in GBM. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Variable	Distribution in the analysis sample (%)	n/N (%) reporting last year injecting	OR (95% CI)	adjusted OR (95% CI)
Age range				
16–19	7.50	3/1254 (0.24)	0.23* (0.07, 0.72)	0.42 (0.13, 1.36)
20–29	35.23	62/5887 (1.05)	Ref	Ref
30–59	52.97	229/8685 (2.64)	2.54*** (1.92, 3.38)	1.56** (1.13, 2.16)
60+	5.30	9/885 (1.02)	0.97 (0.48, 1.95)	0.98 (0.47, 2.06)
Highest qualification				
No secondary qualifications, O-levels, GCSE	17.66	43/2903 (1.48)	Ref	
A-levels	33.76	91/5550 (1.64)	1.11 (0.77, 1.60)	
University degree	48.59	156/7988 (1.95)	1.32 (0.94, 1.86)	
Employment				
Employed full-time	58.74	177/9733 (1.82)	Ref	
Not employed full-time	41.26	117/6838 (1.71)	0.94 (0.74, 1.19)	
Where respondent lives				
London integrated region and centre	24.10	128/3950 (3.24)	Ref	Ref
North of England	23.67	51/3880 (1.31)	0.40*** (0.29, 0.55)	0.65* (0.45, 0.93)
Midlands and East of England	21.14	50/3465 (1.44)	0.44*** (0.31, 0.61)	0.71 (0.49, 1.03)
South of England	22.32	47/3658 (1.28)	0.39*** (0.28, 0.54)	0.50*** (0.34, 0.73)
Devolved nations	8.77	21/1438 (1.46)	0.44*** (0.28, 0.70)	0.69 (0.41, 1.17)
HIV testing history				
Last test negative	67.20	123/11,233 (1.09)	Ref	Ref
Never received a test result	23.98	14/4009 (0.35)	0.32*** (0.18, 0.55)	0.68 (0.38, 1.20)
Test positive	8.82	166/1474 (11.26)	11.46*** (9.02, 11.57)	5.54*** (4.18, 7.36)
Sexual identity				
Gay	84.41	272/13,991 (1.94)	Ref	Ref
Other	15.59	25/2585 (0.97)	0.49*** (0.33, 0.74)	0.71 (0.44, 1.12)
Steady male partners for cUAI in the last year				
Steady partner(s), no cUAI	16.79	20/2541 (0.79)	Ref	Ref
No steady partner	40.89	127/6189 (2.05)	2.64*** (1.64, 4.24)	1.29 (0.78, 2.14)
1 steady cUAI partner	34.53	80/5226 (1.53)	1.96** (1.20, 3.21)	1.51** (1.42, 4.53)
2+ steady cUAI partners	7.78	58/1178 (4.92)	6.53*** (3.91, 10.90)	2.22** (5.27, 12.67)
Non-steady male partners for cUAI in the last year				
Non-steady partner(s), no cUAI	38.37	26/5825 (0.45)	Ref	Ref
No non-steady partners	26.86	21/4078 (0.51)	1.15 (0.65, 2.05)	1.22 (0.67, 2.22)
1 non-steady cUAI partner	13.10	22/1989 (1.11)	2.49** (1.41, 4.41)	2.54** (1.42, 4.53)
2+ non-steady cUAI partners	21.67	215/3290 (6.53)	15.59*** (10.36, 23.48)	8.17*** (5.27, 12.67)

sectional survey data from a large number of GBM across the UK, in which we describe demographic and socio-sexual correlates of drug injecting and characterise subgroups of GBM injectors by types of drugs used.

2. Methods

We used data from the Gay Men's Sex Survey, a convenience sample survey of GBM living in the UK, and the longest-running community-based survey of GBM in the UK. GBM were recruited to an internet-based survey in late summer 2014 via dating websites, Facebook advertisements and geosocial networking apps. Because of the recruitment methods used, a response rate is not available. We included in this analysis GBM over the age of 16 who identified as gay, bisexual or with another non-heterosexual identity; that is, men who described being sexually attracted to men.

2.1. Correlates with last-year injecting

Because injecting was relatively rare in this sample, we examined any injecting in the last year of any of six drugs (amphetamine/speed, crystal methamphetamine, heroin, mephedrone, GHB/GBL, and ketamine) as our binary dependent variable. We tested a set of bivariate logistic regression models, with independent variables including age group, region of residence, academic qualifications, full-time employment, HIV testing history, gay identity (defined as 'gay' or 'bisexual and other non-heterosexual'), and number of steady and non-steady partners and condom-unprotected anal intercourse (cUAI) in the last year.

For both steady and non-steady partners, we constructed variables relating to both the quantity of partners and the sexual risk behaviours associated with each of those partnerships. This led to a four-category variable for non-steady partners: respondents reported one or more non-steady partners, but with no cUAI in any of those partnerships; respondents reported one non-steady partner with no cUAI in that partnership; respondents reported one non-steady partner with cUAI in that partnership; and respondents reported two or more non-steady partners with cUAI in two or more partnerships. Of note is that respondents could report both steady and non-steady partners in the last year. We constructed a similar variable for steady partners. Independent variables were chosen on the basis of our prior work in understanding drug use patterns in GBM (Melendez-Torres et al., 2016), and account for both demographic characteristics and behavioural risk factors. We then included significant predictors in a multivariable model. Because of the sparseness of our outcome, we confirmed the robustness of the multivariable analysis using a logistic regression model with penalised likelihood estimation, which was developed for use with rare outcomes. A significance level of $p < 0.05$ was used in all analyses.

2.2. Latent class models

We then estimated latent class models to examine potential subgroups of GBM who inject drugs by type of drug injected in the last year. We estimated models using full information maximum likelihood and weakly informative, data-driven prior distributions to stabilise estimation. We tested these models with a successive number of classes,

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