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Patterns of alcohol use among men receiving treatment for heroin and/or cocaine use in England, Brazil and Spain. A cross-country analysis

Polly Radcliffe^a, Martha Canfield^b, Ana Flavia Pires Lucas D'Oliveira^c, Emily Finch^d, Lidia Segura^e, Marta Torrens^f and Gail Gilchrist^{a,g}

^aNational Addiction Centre, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK; ^bHealth Psychology Section, Institute of Psychiatry, Psychology and Neuroscience, King's College London, London, UK; ^cFaculdade De Medicina, Preventative Medicine, Universidade De Sao Paulo, Sao Paulo, Brazil; ^dSouth London and Maudsley NHS Foundation Trust, Addictions Clinical Academic Group, London, UK; ^eSubdirecció General de Drogodependències, Barcelona, Spain; ^fInstitute of Neuropsychiatry and Addictions, IMIM-Institut Hospital Del Mar D'investigacions Mèdiques, Barcelona, Spain; ^gDepartment of General Practice, University of Melbourne, Melbourne, Australia

ABSTRACT

Introduction: Although alcohol is widely used concurrently with illicit drugs, the role of alcohol in recovery from and relapse to drug use is under-researched. This study investigates drinking patterns and factors associated with harmful drinking among men receiving community treatment for heroin and/or cocaine use.

Methods: Secondary analysis of 3 cross-sectional studies in England ($n = 153$), Brazil ($n = 149$) and Spain ($n = 131$) was conducted. Sociodemographic, alcohol consumption (AUDIT), substance use, treatment characteristics, and physical health were assessed. Logistic regression determined factors associated with harmful drinking.

Results: 41% of men receiving heroin and/or cocaine treatment met criteria for harmful drinking. Of this, 28% were not receiving treatment for alcohol. Factors identified with harmful drinking among those who were not receiving treatment for alcohol use were as follows: homeless, unemployment/receiving benefits, poly drug use, history of injecting drug(s), hepatitis C seropositive, and receiving treatment for heroin use with/without treatment for cocaine use. Participants from England who met criteria for harmful drinking were more likely to report not receiving treatment for alcohol use than those from Brazil and Spain.

Discussion: Findings show that harmful drinking is common among men in treatment for drug use and remains neglected by the services.

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Introduction

Men and women in treatment for drug use have long been known to use alcohol in combination with a range of illicit drugs (Darke, Williamson, Ross, & Teesson, 2006; Darke et al., 2015; Gossop, Marsden, Stewart, & Kidd, 2003; Ribeiro et al., 2014; Stevens, 2019; Torrens, Gilchrist, Domingo-Salvany, & psyCoBarcelona Group, 2011) with negative impacts both on overall health as well as on outcomes and retention in treatment (Körkel & Waldvogel, 2008; Stevens, Radcliffe, Sanders, & Hunt, 2008). Conversely, research suggests that people receiving Opioid Substitution Therapy (OST) who are abstinent from alcohol may be less likely to use illicit drugs, in addition to or 'on-top' of substitute medication (Stapleton & Comiskey, 2010).

Deaths attributed to drug use are low in countries where heroin and injecting drug use are rare (Hartzler, Donovan, & Huang, 2011; Ribeiro et al., 2014; United Nations Office on Drugs and Crime, 2015). For the increasingly aging population of those in treatment for heroin

use in Europe (European Monitoring Centre for Drugs and Drug Addiction, 2009) concern has centred on the risks of overdose and death associated with the combination of alcohol with opioids and other sedative medication (Hickman et al., 2008; Office for National Statistics, 2015; Rivas et al., 2013). Alcohol can also exacerbate Hepatitis C Virus (HCV) infection and is associated with liver damage which can accelerate disease progression to cirrhosis (Graham, Matthews, Dunbar, & Stoner, 2010; McDonald et al., 2011; Rivas et al., 2013). Where cocaine rather than heroin is the main drug of misuse, alcohol is also combined with drug use (Lacoste, Pedrera-Melgire, Charles-Nicolas, & Ballon, 2010) and research suggests that concurrent drinking in people who use cocaine and amphetamines diminishes psychosocial functioning and impedes treatment effectiveness (Hartzler et al., 2011). The role of alcohol in recovery from and relapse to drug use is under-researched (Staiger, Richardson, Long, Carr, & Marlatt, 2013).

The extent to which drug and alcohol treatment providers offer an integrated response to drug and/or alcohol problems varies internationally (Cook & Reuter, 2007), yet it is clear that identifying and responding to concurrent alcohol problems as part of treatment for drug misuse provides health and social benefits and improves treatment effectiveness.

Prevalence and patterns of drinking have been little studied or compared among those receiving treatment for heroin, cocaine, and heroin and cocaine (Gossop, Marsden, Stewart, & Kidd, 2002). We know relatively little about a) whether alcohol use is being addressed amongst those receiving treatment(s) for heroin and cocaine use who are drinking harmfully (i.e. a pattern of drinking which is causing physical or psychological harm) (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) and, b) which factors are associated with harmful drinking in this population. Redressing this gap in knowledge is important in order to improve treatment effectiveness among those seeking treatment for drug use who also drink harmfully.

We explore drinking patterns among men currently receiving outpatient substance use treatment in the three contrasting national settings of London and Southeast England; São Paulo, Brazil and the region of Catalonia, Spain. Our analyses focus on three specific groups: heroin users, cocaine users and heroin and cocaine users. In all three countries, illicit drug use contributes to the burden of disease (GBD 2016 Alcohol and Drug Use Collaborators, 2018). Cocaine use is associated with complex public health problems in treatment populations in Brazil (Bastos and Bertoni, 2014; Miguel et al., 2018; Gallassi, Nakano, Wagner, de Oliveira Silva, & Fischer 2016). Blood borne virus infection in the UK and Spain is concentrated in people who inject drugs (Folch et al., 2012; Harris et al., 2019). While there is an overlap in factors associated with the use of heroin and cocaine, studies show variance in motives, pattern of use and response to treatment according to the type of substance used. For example, users of cocaine may use alcohol to outweigh stimulant effects (Brecht, Huang, Evans, & Hser, 2008). Heroin users report more persistent patterns of use and at a higher level than cocaine users (Hser, Evans, Huang, Brecht, & Li, 2008). It is necessary to address the specific patterns and needs of users of different drugs while being mindful of the interactions between the psychopharmacology of alcohol with the illicit drug used. Clinical/service policy and practice must recognise these patterns, as multiple dependencies are reported to be a barrier to successful treatment outcomes.

In order to ascertain prevalence and factors associated with harmful drinking among men in treatment for heroin and crack we address the following research questions: What proportion of men in treatment for heroin, cocaine or both (heroin and cocaine) have received treatment for alcohol? Are drinking patterns similar or dissimilar for those men receiving treatment primarily for heroin, cocaine and both? What are the other user characteristics and service exposure (i.e. length of time in treatment) associated with receiving treatment for alcohol while in treatment for drug use? Emphasis is given to the identification of the characteristics of those who drink at harmful levels who report not receiving alcohol treatment. We highlight how concurrent drug and alcohol problems may be being addressed in each setting.

Methods

Design

We conducted secondary analysis of data collected from two cross-sectional studies on the prevalence of intimate partner violence (IPV) by men aged 18 or older attending outpatient drug and alcohol treatment (Gilchrist, Radcliffe, Noto, & Flavia, 2017; Gilchrist et al., 2015). The first of these studies was conducted with men attending a randomly sampled one-third of community substance use treatment services in Catalonia, Spain (Gilchrist et al., 2015). The second study was an investigation of the prevalence and risk factors for IPV by men in community substance use treatment in England and Brazil (Gilchrist et al., 2017).

Sample and settings

The total sample comprised 733 men. The secondary analyses were conducted on a subsample of 429 men (representing 58.5% of the original sample of 733 men) who were receiving treatment for heroin and/or cocaine. The sample comprised 152 men (35.4%) from England, 149 men (34.7%) from Brazil, and 128 men (29.8%) from Spain. Convenience sampling was employed in both studies. Men in treatment waiting rooms were approached and invited to take part in questionnaire interviews by researchers. Services included six outpatient community substance use services in São Paulo, Brazil, three in London, three in South East England and twenty-one in Catalonia, Spain. Researchers verbally explained the study to potential participants and gave them a participant information sheet prior to gaining informed consent. Participants received a £10 gift voucher or monetary equivalent for their time in England and €10 in Spain. No payment was offered in Brazil in accordance with local practice. Ethical approval for this study was granted by the Comitê de Ética em Pesquisa da secretaria de Saúde da Prefeitura de São Paulo (Ref:715.462), East Midlands-Northampton National Research Ethics Service in England (Ref: 14/EM/0088) and by the Institut Hospital del Mar d'Investigacions Mèdiques Research Ethics Committee.

Measurements

In Spain, the questionnaires were mainly self-completed although a researcher helped participants with limited literacy to complete (Gilchrist et al., 2015). In England and Brazil the questionnaire was administered by trained researchers (Gilchrist et al., 2017).

Demographics

Information about age, relationship status, living arrangements, highest level of education attained, current employment status and whether the participant lived in the country of birth, and was able to manage on available income were collected.

Treatment for substance use

Participants were asked whether they were currently receiving treatment for use of drug/s, the type/s of drug/s for which they were receiving treatment and for how long they had received this treatment (less than 6 months, between 6 to 12 months, and more than 12 months). Participants were asked whether they were currently receiving treatment for problems related to use of alcohol (England and Brazil studies) or treatment for alcohol use (Spain study) and the length of time they had been receiving this treatment (less than 6 months, between 6 to 12 months, and more than 12 months).

Alcohol use

The Alcohol Use Disorders Identification Test (AUDIT) (Babor et al., 2001) was used to assess drinking patterns in the previous 12 months. The AUDIT has 10 items; items 1–3 assess hazardous alcohol use, items 4–6 assess alcohol dependence symptoms and items 7–10 assess harmful alcohol use. Scores range from 0–40. Cut-off score of 8 for hazardous and harmful drinking yielded sensitivities in the mid 0.90's and specificities averaged in the 0.80's (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993). An AUDIT score of 0 indicates abstinence, scores of 1–7 represent low risk drinking, scores of 8–15 represent hazardous drinking; scores of 16 and above represent harmful drinking including alcohol dependence (Babor et al., 2001).

Poly drug use

Participants were asked which drug/s (not prescribed by a doctor or nurse) they had used in the past 30 days. These included heroin, cocaine, methadone, amphetamines, methamphetamines, hallucinogenics, benzodiazepines, novel psychoactive drugs and cannabis. Poly drug use was defined as consuming more than one type of drug not including alcohol.

History of injecting drug(s)

For the England and Brazil samples, participants were asked to report whether they had injected drugs in the past 30 days and in Spain, participants were asked whether they had ever injected in their lifetime. Therefore, a proxy variable for 'history of injecting drug(s)' was created for comparison across studies.

General health

Participants were asked to report how their health was in general using a 5-point Likert scale ranging from 1 (Excellent) to 5 (Poor). They were also asked to report if a health professional had ever told them they have a) Hepatitis C, and/or b) HIV.

Statistical analysis

Analyses were performed using IBM SPSS 22.5 (IBM Corp, 2013). Descriptive statistics were calculated using frequencies and percentages for categorical data and means and standard deviations for continuous data. Differences were assessed using *t*-tests for continuous data and chi-square tests for categorical data. The association between demographic, drug use and health variables with currently receiving alcohol treatment amongst participants who met the harmful drinking criteria (AUDIT scores of ≥ 16) was examined in univariate binary logistic regressions. Differences in sample characteristics are presented in Table 1. Table 2 compares levels of drinking by treatment groups. Table 3 describes the variables associated with not receiving alcohol treatment among participants who reported harmful drinking during the past 12 months.

Results

Detailed characteristics of the sample are presented in Table 1. The mean age of participants was 39.68 years (SD 8.61). The majority were heterosexual (94.4%) and lived in their country of birth (92.4%). Only 34.5% of the sample reported currently being in an intimate relationship. Data from England and Brazil revealed that 17.6% of the sample was homeless (data unavailable for Spain).

Compared to participants from Brazil and Spain, a significantly greater proportion of those from England reported poor/fair general health. The sample from Spain had the highest proportion of HIV seropositive compared to England and Brazil, respectively.

Almost half of the sample (48.3%) reported no schooling/primary school only/left high school without qualifications and 69.7% were unemployed or receiving pensions or benefits. A significantly greater proportion of participants from England than Brazil and Spain reported being unemployed/receiving pensions or benefits and not living in their country of birth. Compared to those from Brazil, a significant proportion of participants from England reported being homeless (no data for Spain). Participants from Brazil had the highest proportion of no schooling/primary school only/left high school without qualification than participants from Spain and England.

Drug use

The majority of the sample were receiving treatment for cocaine (73.8%), either alone (51.0%) or in combination with treatment for heroin use (22.8%). Variations in drug use were reported across samples. In England, the majority of participants (91.2%) reported being in treatment for heroin, either alone (55.3%) or in combination with treatment for cocaine (35.9%). Whereas in Spain and Brazil the majority of participants reported being in treatment for cocaine (77.9% and 100% respectively). Reports of poly drug use was common (52%), and more frequently reported in England than in Brazil. No participants from Brazil reported having injected drugs. A greater

Table 1. Men currently receiving treatment for heroin and/or cocaine/crack: comparison by country.

	Total Sample (n = 429) n (%)	England (n = 152) n (%)	Brazil (n = 149) n (%)	Spain (n = 128) n (%)	p
Demographics					
Age [mean (SD)]	39.68 (8.61)	41.35 (8.72)	38.56 (9.58)	39.01 (8.59)	.010
Heterosexual	403 (94.4%)	146 (96.7%)	141 (94.6%)	119 (91.5%)	.153
In an intimate relationship	149 (34.5%)	54 (35.9%)	50 (33.6%)	44 (33.8%)	.928
Lives in country of birth	396 (92.3%)	127 (83.6%)	149 (100%)	120 (93.8%)	<.001
Homeless	53 (17.6%)	46 (30.3%)	7 (4.7%)	Data not available	<.001
No schooling/ primary education/ left high school with no qualifications	209 (48.3%)	63 (41.2%)	96 (64.4%)	50 (38.2%)	<.001
Unemployed/ receiving benefits	299 (69.7%)	141 (94.0%)	83 (55.7%)	75 (59.1%)	<.001
Drug use					
In treatment for					<.001
Heroin	112 (26.2%)	84 (55.3%)	0	28 (21.9%)	
Cocaine/crack	219 (51.0%)	13 (8.5%)	146 (98.0%)	60 (46.6%)	
Heroin and cocaine/crack	98 (22.8%)	55 (35.9%)	3 (2.0%)	40 (31.3%)	
History of injecting drug(s) ^b	108 (25.3%)	58 (37.9%)	0	50 (39.7%)	<.001
Poly drug use in the last 30 days ^a	159 (52.6%)	100 (65.4%)	59 (39.6%)	Data not available	<.001
Length in treatment for drug use					<.001
Less than 6 months	122 (28.5%)	38 (24.8%)	63 (42.3%)	21 (16.5%)	
Between 6 to 12 months	63 (14.7%)	20 (13.1%)	24 (16.1%)	19 (15.0%)	
More than 12 months	243 (56.8%)	94 (61.8%)	62 (41.6%)	87 (68.5%)	
Alcohol use					
AUDIT total score [mean (SD)]	14.16 (12.36)	14.99 (13.21)	18.97 (11.87)	7.73 (8.63)	<.001
Drinking patterns in past 12 months					<.001
Abstinence (AUDIT score = 0)	52 (12.1%)	19 (12.5%)	7 (4.7%)	26 (20.3%)	
Moderate drinking (AUDIT score 1–7)	132 (30.8%)	44 (28.8%)	30 (20.1%)	58 (45.3%)	
Hazardous drinking (AUDIT score 8–15)	69 (16.1%)	26 (17.0%)	22 (14.8%)	21 (16.4%)	
Harmful drinking (AUDIT score ≥16)	176 (41.1%)	63 (41.2%)	90 (60.4%)	23 (18.0%)	
In treatment for alcohol	187 (43.5%)	34 (22.4%)	115 (77.2%)	38 (29.5%)	<.001
Length in treatment for alcohol use					.076
Less than 6 months	67 (35.8%)	12 (35.3%)	48 (41.7%)	7 (18.4%)	
Between 6 to 12 months	35 (18.7%)	4 (11.8%)	22 (19.1%)	9 (23.7%)	
More than 12 months	85(45.5%)	18 (52.9%)	45 (39.1%)	22 (57.9%)	
Health					
Poor/Fair general health	245 (57.9%)	113 (74.3%)	76 (51.0%)	56 (45.9%)	<.001
Hepatitis C seropositive	83 (27.6%)	65 (42.8%)	18 (12.1%)	Data not available	<.001
HIV seropositive	34 (8.0%)	6 (3.9%)	8 (5.4%)	20 (15.9%)	<.001

^aPoly drug use in the last 30 days refers to the use of two or more illicit substances (excludes alcohol).

^bInjected drug(s) in the past 30 days for Brazil and England samples; injected drug(s) ever in life for Spain sample.

Table 2. AUDIT Means (SD) for participants according to treatment currently receiving and associations with drinking patterns: total sample.

	AUDIT Groups						
	Mean AUDIT Score Mean (SD)	p	Abstinence (AUDIT score = 0) (N = 45)	Low Risk Drinking (AUDIT score = 1-7) (N = 101)	Hazardous Drinking (AUDIT score 8–15) (N = 46)	Harmful Drinking (AUDIT score ≥16) (N = 50)	p
In treatment for drug use only		.014					.417
Heroin	8.71 (9.99)		21 (46.7%)	37 (36.6%)	22 (47.8%)	19 (38.0%)	
Cocaine	7.28 (8.02)		15 (33.3%)	33 (32.7%)	14 (30.4%)	12 (24.0%)	
Heroin and cocaine	10.29 (10.67)		9 (20.0%)	31 (30.7%)	10 (21.7%)	19 (38.0%)	
	Mean AUDIT Score Mean (SD)	p	Abstinence (N = 7)	Low Risk Drinking (N = 31)	Hazardous Drinking (N = 23)	Harmful Drinking (N = 126)	p
In treatment for drug and alcohol		.773					.473
Heroin and alcohol	22.77 (14.79)		1 (14.3%)	2 (6.5%)	2 (8.7%)	8 (6.3%)	
Cocaine and alcohol	20.59 (11.53)		5 (71.4%)	23 (74.2%)	21 (91.3%)	96 (76.2%)	
Heroin, cocaine and alcohol	23.83 (12.91)		1 (14.3%)	6 (19.4%)	0	22(17.5%)	

proportion of participants from Spain reported a history of injecting drug use than those from England. Over half the sample (56%) reported being in treatment for drug use for more than 12 months. Participants from England and Spain reported longer length in treatment than those from Brazil (Table 1).

Alcohol use

Overall, the mean AUDIT score was 14.16 (SD 12.436). Nearly half the sample reported harmful drinking (41%). Only 12%

of the sample was abstinent of alcohol. Participants from Brazil had the highest mean AUDIT score (M 18.97, SD 11.87), followed by England (M 14.99, SD = 13.21). The highest proportion of alcohol abstinence and low risk drinking was reported by participants from Spain (20.3% and 45% for abstinence and low-risk drinking, respectively). Brazil had the highest proportion of its sample meeting the criteria for harmful drinking (60.4%) and the highest proportion of its sample reporting receiving treatment for alcohol (77.2%). Compared to both Spain and Brazil, England had the lowest proportion of participants reporting receiving treatment for alcohol.

Table 3. Variables associated with currently receiving alcohol treatment amongst participants who met the harmful drinking criteria.

Harmful Drinking	(AUDIT score ≥ 16)		<i>p</i>
	In Treatment (N = 126)	Not In treatment (N = 50)	
Demographics			
Age [mean (SD)]	39.44 (8.91)	40.52 (7.06)	.443
Heterosexual	119 (94.5%)	45 (93.8%)	.860
In intimate relationship	36 (28.6%)	15 (30.6%)	.790
Country			<.001
England	30 (23.8%)	33 (66.0%)	
Brazil	82 (65.1%)	8 (16.0%)	
Spain	14 (11.1%)	9 (18.0%)	
Live in the country born	121 (96.0%)	46 (92.4%)	.273
Homeless ^a	16 (14.4%)	14 (34.1%)	.007
No schooling/primary education only	71 (56.3%)	24 (48.0%)	.316
Unemployed/ Receiving benefits	86 (68.3%)	43 (86.0%)	.016
Drug use			
Treatment for			<.001
Heroin	8 (6.3%)	19 (38.0%)	
Cocaine	96 (76.2%)	12 (24.0%)	
Heroin and cocaine	22 (17.5%)	19 (38.0%)	
History of injecting drug(s) ^b	13 (10.3%)	24 (48.0%)	<.001
Poly drug use in the last 30 days ^a	63 (56.3%)	31 (75.6%)	.029
Length in treatment for drug use			.079
Less than 6 months	54 (42.9%)	15 (30.0%)	
Between 6 to 12 months	20 (15.9%)	5 (10.0%)	
More than 12 months	52 (41.3%)	30 (60.0%)	
Health			
Poor/Fair general health	77 (61.1%)	32 (66.7%)	.498
Hepatitis C seropositive ^a	24 (21.4%)	17 (42.5%)	.010
HIV seropositive	8 (6.3%)	3 (6.4%)	.994

^aData from Spain sample not available for these variables.

^bInjected drug(s) in the past 30 days data from Brazil and England samples; Injected drug (s) ever in life data from Spain sample only.

Drinking patterns across treatment groups

Table 2 compares the drinking patterns for those receiving treatment for 1) heroin only, 2) cocaine only, 3) both heroin and cocaine and 4) for those receiving treatment for alcohol and drugs (heroin, cocaine, and both heroin and cocaine). Among participants receiving treatment for drug/s use only, the average AUDIT score was significantly higher among those receiving treatment for heroin and cocaine. There was no significant difference between receiving treatment for drug/s only and AUDIT groupings. Significant differences were also not reported in the mean AUDIT scores and AUDIT groupings across those receiving treatment for both drug/s and alcohol use. 28% (50/176) of participants in treatment for drug use who also met the criteria for harmful drinking reported they were not receiving treatment for alcohol use.

Variables associated with not receiving treatment for alcohol use among harmful drinkers

There were significant differences in the characteristics of those receiving/not receiving treatment for alcohol use who met criteria for harmful drinking (Table 3). Participants who were homeless, were unemployed/receiving benefits, were poly drug users, had injected drug(s) in the past and self-reported being hepatitis C seropositive were significantly more likely not to be receiving treatment for harmful drinking. Participants from England who met criteria for harmful

drinking were more likely to report not receiving treatment for alcohol use than those from Brazil and Spain.

The largest proportion of participants who met criteria for harmful drinking but who were not receiving treatment for alcohol use were those receiving treatment for heroin use (with or without treatment for cocaine use).

Discussion

Our findings show that concurrent drinking among men in drug treatment is common across these three diverse national cohorts. Around four in ten men in treatment for heroin and/or cocaine in our sample reported drinking at harmful levels (ranging from 2 in 10 in Spain to 6 in 10 in Brazil), rates that far exceed general population estimates (Ministério da Saúde da Brasil, 2012; Ministerio de Sanidad and Servicios Sociales e Igualdad Secretaría de Estado de Servicios Sociales e Igualdad, 2014; Health & social care information centre, 2015). Mean AUDIT scores were also highest in this treatment group. Nevertheless, nearly half (46%) of all men receiving treatment for heroin and heroin/cocaine were either abstinent from alcohol or met the criteria for low risk drinking. This is consistent with the finding from the Australian cohort study (Darke et al., 2015) of high levels of both abstinence/low risk and harmful drinking among those in drug treatment. Those in treatment for heroin and heroin and cocaine – i.e. from England and Spain - who met the criteria for harmful drinking were however less likely to be receiving treatment for alcohol use compared to those (mainly from Brazil) who were receiving treatment for cocaine use. Although it may be that a clear message is being transmitted concerning the health risks of concurrent alcohol and opioid use, this study has identified a distinct group of men who are in drug treatment who continue to drink harmfully and whose harmful drinking may not be being addressed.

Despite the fact that all the services from which men were recruited for our study provided both drug and alcohol treatment, a much higher proportion of the Brazil sample who met criteria for harmful drinking reported receiving treatment for both alcohol and drug use. Participants reported longer time in treatment for drug use in England and Spain than the Brazil study but those who had been receiving drug treatment for longer (12 months or more) and met criteria for harmful drinking were also less likely to also receive treatment for harmful drinking than those who had been in treatment for less than 6 months. These findings that retaining participants in treatment in Brazil is challenging (Mateus et al., 2008) and that those in treatment for heroin and heroin/cocaine in England and Spain are retained for longer, are likely to be linked to the proven success of OST in retaining participants in treatment (Advisory Council on the Misuse of Drugs, 2015; Peles, Schreiber, & Adelson, 2006). Treatment for concurrent harmful drinking in England and Spain however would seem to be less likely either to be sought by service users or offered by treatment providers than it is for those drinking concurrently with cocaine use in Brazil. There is thus a need for treatment providers in England and Spain to monitor alcohol consumption alongside the substance for

which treatment is sought since alcohol use may increase following a reduction in heroin use (Anglin, Almog, Fisher, & Peters, 1989).

In our sample, 33/50 or 66% of those who were drinking harmfully and not receiving treatment for alcohol were from England (compared to 18% from Spain and 16% from Brazil). The complex profile of this group (including high rates of homelessness, unemployment, poly and injecting drug use and hepatitis C seropositive status) may also provide an explanation for unmet need; a higher proportion of whom also reported poor physical health (75.5%) compared to Brazil and Spain. Although a subjective measure, reports of poor health may reflect Hepatitis C sero positive diagnosis that studies show is associated with liver damage among those who also drink harmfully (McDonald et al., 2011).

In a paper comparing the characteristics of the 'two worlds' of those who are in and out of alcohol treatment in Stockholm, Storbjörk and Room (2008) argue that while those in alcohol treatment report more severe alcohol problems, logistic regression analysis shows that the strongest predictors of those who are in treatment are previous treatment, unemployment and having an unstable living situation. The authors conclude that the primary role of alcohol treatment is temporary respite from everyday life for those who are older, unstably housed and unemployed. These findings are moreover consistent with increasing evidence that recovery, for those with severe and complex drug and alcohol problems, is a long term process requiring support in a range of domains (Advisory Council on the Misuse of Drugs, 2012; Granfield & Cloud, 2001) They may similarly provide an explanation for the poor retention rate of patients in drug and alcohol treatment services in Brazil for whom short term engagement may also constitute a coping strategy. In England and Spain, for concurrent drinkers, treatment for heroin/cocaine use, may provide those seeking drug treatment with the support they need without also addressing any concurrent drinking (Storbjörk & Room, 2008).

UK clinical guidelines for alcohol disorders (National Institute for Health and Care Excellence, 2011) recommend that harmful drinking is assessed and identified by competent and skilled staff and that concurrent opioid and alcohol use are both actively treated. Comprehensive assessment that should explore 'multiple levels of need' are recommended for those with an average AUDIT score of 15. Guidelines for the clinical management of drug dependence produced for the Department of Health for England and Wales and the Devolved Administrations, also recommend that concurrent alcohol use is assessed in those seeking drug treatment (Independent Expert Working Group, 2017). There may however be disincentives for those receiving OST to disclose the extent of their drinking to treatment staff since guidelines recommend that 'take home' doses of OST medication should only be given if patients are not using excessive alcohol (Independent Expert Working Group, 2017). In their cross-sectional survey of patients receiving methadone treatment in primary care in Ireland, Ryder et al. (2009), reported fear that disclosing levels of alcohol use might lead to the reduction or withdrawal of methadone. One-third of patients receiving methadone maintenance whose drinking

intentions were surveyed by Hillebrand, Marsden, Finch, and Strang (2001) reported drinking to increase the psychoactive effects of methadone. There is thus a need for further research that explores the reasons and motivations for harmful levels of drinking among those receiving drug treatment.

In a recent systematic review, Soyka (2015) estimates that approximately one third of patients in methadone treatment drink harmfully and argues that Alcohol Use Disorders in opioid dependent patients are a neglected area of research. Our findings that harmful alcohol use may not be consistently addressed among those receiving treatment for heroin and heroin/cocaine use are alarming given our knowledge of the risks to health and mortality; the impacts on treatment effectiveness and the impairment associated with concurrent harmful drinking with other drug use (Graham et al., 2010; Hartzler et al., 2011; Kleykamp, Vandrey, Bigelow, Strain, & Mintzer, 2015; McDonald et al., 2011; Office for National Statistics, 2015). In order to avoid on-top, illicit drug and alcohol use for those receiving OST, research emphasises the need for optimal dosing of substitute opioid medication (Roux et al., 2014; Soyka, 2015). In their longitudinal study Roux et al. (2014) found that pre-existing alcohol misuse predicted non-adherence to methadone maintenance. They argue that 'methadone dose adequacy is crucial to achieving good adherence to MMT' and may also deter harmful and dependent drinking. Soyka's review (Soyka, 2015) questions the evidence base for psychological interventions for those in drug treatment who meet the criteria for harmful drinking. Recommendations for a shift to models of Patient Centred Care for those receiving Opioid Substitution Therapy (Strike & Guta, 2017) and for alcohol disorders (Barrio & Gual, 2016), may also be helpful for those seeking treatment for both heroin and cocaine use who drink concurrently, and are likely to be relevant in all three national contexts examined in this paper. In some areas, work is underway. Catalonia for example is working towards introducing a strategy and protocol for Alcohol Screening and Brief Interventions for drug users with Hepatitis C. There are also plans to introduce systematic alcohol screening in harm reduction services in Catalonia. The strong association between homelessness and concurrent harmful drinking among men in treatment for heroin and cocaine in England in particular highlights the need for targeted alcohol services and supported housing for this most complex group (Bramley et al., 2015). The recommendations in the UK Drug Strategy (H.M. Government, 2017) that commissioning of drug and alcohol treatment services should be integrated is also to be welcomed.

Strengths and limitations

There are limitations in the comparability of data from men in drug and alcohol treatment across three diverse national cohorts. Notably we do not have data for homelessness for Spain and our data on injecting drug use for Spain is 'ever injected' rather than injected in the last 30 days which was the question asked of participants in Brazil and England. There are also problems in comparing data from countries with different social security systems and at different stages

of economic development such as found in Spain, England and Brazil. It is not surprising for example to find a lower proportion of men in the Brazilian cohort who reported being 'unemployed' compared to Spain/England since low paid work in Brazil is overwhelmingly concentrated in the informal labour market, outside the social security system, registration for which is required in order to receive unemployment benefits (Higgins & Pereira, 2014). Similarly, although reported 'homelessness' is surprisingly low for the Brazilian cohort compared to England, it is important to note that the meanings and significance of homelessness are also very different in Brazil, where much housing may be self-constructed and improvised and where the climate means living and sleeping on the street is a very different prospect than it is in Northern Europe. A further limitation may be that participants were recruited to a study about relationships rather than alcohol use and that convenience sampling was employed. Although there may be limitations in the validity of self-reported substance use data, studies comparing reports with urine tests have found a high level of reliability in treatment populations (Napper, Fisher, Johnson, & Wood, 2010) and less reliability among general population samples (Ashrafi et al., 2018). In addition, the cross-sectional nature of the study means that causality cannot be ascertained, only assumed. This secondary analysis has focussed on the characteristics of concurrent drinking of *men* in treatment for heroin and or cocaine. These findings cannot thus be generalised to women in treatment for heroin and cocaine use, who have been found to drink significantly less frequently and at a lower volume than their male counterparts (Beswick et al., 2001; Darke et al., 2015). This paper reports on secondary analysis of data that was collected for a primary study concerning IPV perpetrators receiving substance use treatment. Nevertheless, our samples do represent the drug using characteristics of people attending treatment services in each of the three countries, for example, in England treatment services are largely attended by heroin and/or crack users (Public Health England, 2015); in Brazil, treatment services are largely attended by cocaine users (Ribiero et al., 2016) and in Spain, treatment services are largely attended by crack and heroin users (EMCDDA, 2019). Use of the standardised AUDIT instrument has, in addition, provided a consistent measure across the cohorts and despite these limitations, our findings reveal considerable national differences in the extent to which men who are in treatment for drug use are also receiving treatment for harmful drinking.

Conclusions

In this secondary analysis we have been able to show the extent to which harmful drinking among men in treatment for drug use is neglected. The impact of alcohol on the health and treatment adherence and progression of liver disease suggests the need for renewed awareness among treatment staff as well as screening to identify and address harmful drinking among those presenting for drug use.

Disclosure statement

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