The Drug Treatment Outcomes Research Study (DTORS): Research Design and Baseline Data

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Abstract: The Drug Treatment Outcomes Research Study (DTORS) is the more recent of two such major English studies. Over the past decade, a substantial policy shift has emphasised the role of treatment in diverting drug misusing offenders from the criminal justice system. At the same time, changes in the drug-using population, particularly increasing levels of crack cocaine use, have led to an acute need to evaluate the extent to which drug treatment works. DTORS consists of three components: the main, quantitative element tracking the treatment progress of N=1,796 drug treatment seekers; qualitative work using data from a sample of treatment seekers and treatment providers; and a cost effectiveness analysis. This paper provides an overview of the methods used for the main quantitative element; a longitudinal, nationwide, multi-site, observational, cohort study using survey interviews to assess the impact of treatment on drug use, offending, and health. An overview of the DTORS baseline sample is provided and compared with the target population of drug treatment seekers in England. Participants were drug users seeking treatment from community based or residential treatment services, assessed at baseline and followed up over a 12-month period. The baseline DTORS sample was predominantly male (73%) and aged 25 to 34 (47%). Primary problem drugs included heroin (57%) and crack (12%) with drugs used in the month prior to baseline having a mean value of £1,213. 72% committed offences in the 12 months before recruitment, most commonly shoplifting or buying and selling stolen goods.

Keywords: baseline survey, data collection, drug dependence, methods, research design, treatment.

INTRODUCTION

The Drug Treatment Outcomes Research Study (DTORS) [1] is the most recent of two major large-scale English outcomes studies in this field. DTORS seeks to evaluate treatment for individuals with problems of drug misuse in the context of recent policy changes that have focused on diverting drug misusing offenders from the criminal justice system (CJS) into treatment and the national growth in use of crack cocaine.

The nature of drug misuse in England has changed over the past decade. National data show 14% [2] of treatment entrants using crack and/ or cocaine in 1998. This proportion had increased to 24% [3] by 2001, with recent data suggesting that 35% of treatment entrants use crack in England and up to 52% across nine English Government Office Regions [4]. Crack users may have differing treatment needs than clients presenting with problematic use of other drugs and crack use has elicited a wide and disparate range of treatment responses [5, 6].

In addition to changes in the nature of the English drug treatment population the approach to drug treatment referral has also changed. The widespread introduction of diversionary schemes for drug misusers in contact with the CJS, has allowed treatment to be offered to large numbers of people who may not otherwise have sought it [7]. At the time of DTORS 24% of treatment seekers were CJS-referred [8]. In England and Wales, the high proportion of offenders who misuse drugs [9] has led to the development of the Drug Interventions Programme (DIP); referring offenders from the CJS to advance people "out of crime and into treatment" [10]. DIP built on diversionary schemes such as Arrest Referral, known to have resulted in substantial numbers of drug misusing offenders seeking treatment [11, 12]. Whether the expansion of these 'funnels' into treatment has introduced greater hetero-geneity in the clients of drug services and whether treatment works for those referred from the CJS remain crucial questions. CJS-referred clients may present particular challenges to treat-ment services by virtue of the seriousness of their drug problems [13, 14] and in terms of adherence to treatment proto-cols, co-operation with agency staff, continuing use of drugs, continuing offending behaviour and rates of relapse, which may adversely affect treatment outcomes in this group [15].

With substantial expenditure on services for drug misusers and apparent increases, year on year, in the number of drug users in treatment there is an acute need to evaluate whether

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current drug treatment works for the changing drug treatment population in England. DTORS was therefore designed to provide information about the effectiveness of drug treatment currently available across England and examine whether, and how, these changes to the drug treatment population impact upon treatment outcomes. The study included three distinct elements: a quantitative follow-up study; a qualitative study and an economic evaluation [1, 16-18]. The purpose of this paper is to provide an overview of the research methods used in the main quantitative aspect of DTORS and describe the baseline data, in particular, how the baseline sample reflects the target drug treatment seeking population.

METHODS

Research Design

Further details of the design of DTORS are available elsewhere [1, 19]. DTORS was a nationwide, multi-site, observational, prospective, longitudinal, cohort study designed primarily to assess the impact of drug treatment on:

- Levels of drug and alcohol use
- Offending behaviour
- Physical and mental health
- Wider social outcomes

Baseline interviews took place with treatment seekers presenting for community based specialised and structured treatment (known in England as Tier 3, and referred to in this paper as community based treatment) or residential specialised and structured treatment (known in England as Tier 4, and referred to in this paper as residential treatment), followed up over a 12-month period. Structured drug treatment is defined as that which, "follows assessment and

is delivered according to a care plan, with clear goals, which is regularly reviewed with the client" [20]. Clients normally receive an initial assessment at first face-to-face contact with a treatment agency. Structured treatment is likely to start a number of days or weeks later.

Ethical Approval

Multi-site NHS Research Ethics approval was obtained for the study.

Outcomes Assessment

Data collection was *via* a standardised questionnaire, developed for the study and constrained by Steering Group consensus to limit mean interview length to 45 minutes. Information was gathered on: demographics and accommodation; route of referral; previous treatment history; motivation and goals; drug use; risk behaviour; offending behaviour; mental health; physical health; income; and education. Table **1** shows data collected at baseline and follow-up.

The following standardised and previously validated instruments were included in the questionnaire: Circumstances, Motivation and Readiness scale (CMRS) [21]; Severity of Dependence Scale (SDS) [22]; and SF12 [23]. Other items were adapted from well-known instruments including the Maudsley Addiction Profile (MAP) [24] and the Injecting Risk Questionnaire (IRQ) [25]. Sections covering accommodation, drug use, treatment pathways, goals, and motivation were subject to cognitive testing in four non-statutory agencies, leading to some question re-wording. Full pilot testing of the complete survey tool was carried out in treatment agencies within four Drug Action Teams (DATs - the administrative areas responsible for

Table 1.   Questionnaire Breakdown

Domain	Baseline	First Follow-Up	Second Follow-Up
Demographics	X	X	X
Accommodation	X	X	X
Referral source	X		
Treatment history	X		
Treatment pathway since baseline interview		X	X
Aims and goals of treatment	X	X	X
CMR (circumstances)	X	X	X
CMR (motivation)	X		
CMR (readiness)	X		
Drug use in last 4 weeks	X	X	X
Drug use in last 12 months	X		
Drug use since last interview		X	X
Health risk behaviour	X	X	X
Offending behaviour in last 12 months	X		
Offending behaviour in last 4 weeks	X	X	X
Mental and physical health (SF12)	X	X	X
Income and education	X	X	X

commissioning drug treatment provision), with results informing question ordering and wording [19]. All interviews used Computer Assisted Personal Interviewing (CAPI) with a trained interviewer reading questions from a laptop and inputting the respondent's answers. The option of self-completion was available for sensitive questions, such as risk-taking behaviour and offending.

Sample Size and Power Calculation

A power calculation indicated that a sample of N=2,600 would have 90% power to detect a difference of £25 in change in weekly drug spend between CJS and non-CJS referred clients. This assumed a 30% loss to 12-month follow-up [26], a within subject correlation of 0.2, an inter-cluster correlation of ρ=0.04 [27] due to clustering of the sample within service providers, and a minority of participants (1:4) being CJS referrals. The chosen variable was an indicator of drug use intensity and associated drug-related problems. The power of the sample was revisited in the light of the actual baseline sample of N=1,796. With a 1:2 ratio of CJS to non-CJS referrals, a presumed 40% loss to (first) follow-up and a within subject correlation of 0.5, the obtained sample had 89% power to detect a £25 difference in change in weekly drug spend between CJS and non-CJS clients between baseline and first follow-up [19].

Sampling

The study adopted a 3-stage sampling strategy (Table **2**) aiming for a nationally representative sample of DATs, agencies, and clients. This strategy was supported by data from the National Drug Treatment Monitoring System (NDTMS) on the target population of national treatment seekers at the time of DTORS (Mar 2006 - Jan 2007).

detoxification, residential rehabilitation, specialist prescribing, GP prescribing, structured counselling, and structured day care. Although most provide only some of these interventions, all were needed to ensure that the full range of interventions was represented.

Participant Selection

The baseline sample comprised those who sought treatment, regardless of whether they started treatment. All individuals newly seeking treatment at each agency within a nine week sampling window were eligible for inclusion. Inclusion criteria designed to facilitate follow-up were not used, since this approach increases the risk of significant sampling bias. This is in contrast to previous studies that, prior to DTORS, were the main source of evidence. For example, stability of contact address was used in NTORS [4] and restrictions were placed on eligibility for follow-up in DATOS [28]. Eligibility criteria were:

- Individuals seeking treatment within a specified sample window
- Aged 18 years or over
- Presenting with a drug use problem
- Requesting treatment for their drug problem

Data Collection Procedure

Interviews took place between February 2006 and March 2007. A total of 262 professional interviewers gathered data at baseline. Each attended a one-day briefing run by the research team, which included guidance on recruitment; further briefings were held throughout the project. Interviewer standardisation was aided by the use of consistent question wording and prompts. Interviews took place as close to the date of presentation as possible (72% within two weeks).

Table 2.   Sampling Strategy & Characteristics of Sample

Stage	Eligible for Inclusion	Target Sample	Achieved Sample
1. DATS	100 of 149 DATs in England		94
2. Agencies	All agencies within participating DATs providing community based or residential treatment	Average 6 per DAT, 628 in total	N=342
3. Clients	All clients of participating agencies, presenting for a new episode of treatment within the sample window (4-9 weeks)	Average 3 per agency per week, approx. 10000 in total	N=1,796, 73% male, 72% 25-44 yrs, 89% white

DAT Selection

Stage one involved selecting 100 DATs from the 149 in England; this large proportion (67%) was chosen to minimise the burden on individual DATs and increase sampling power by decreasing the effect of clustering. DATs were selected by grouping all 149 into tertiles based on levels of CJS referrals reported to NDTMS. One hundred DATs were then randomly sampled across the tertiles. Where DATs declined to participate, a replacement DAT was randomly selected from the same tertile as the original DAT.

Agency Selection

All agencies (statutory and non-statutory) providing community based or residential treatments within selected DATs were approached. These provided inpatient

Saliva Testing

To validate self-reported drug use, saliva specimens were collected from a randomly selected sample of participants to test for use of heroin, other opiates, cocaine, or crack cocaine in the previous two days.

CHARACTERISTICS OF BASELINE SAMPLE

Table **3** sets out the key characteristics of the baseline sample. Table **4** compares the DTORS sample (N=1,796) with the target drug treatment population, using NDTMS data on new treatment seekers (N=86,908) during the same time period. NDTMS routinely collects community based and residential treatment service data across England. The age and gender profile was as expected in a drug treatment sample (73% male, median age 32 yr) [2].

The DTORS baseline sample was the same in terms of gender, but was slightly older, than the target population, with a lower representation of clients from the youngest age group (18-24yr) and a larger representation in the age group 35-44yr. A similar majority of treatment seekers from a white background was seen in both samples.

The majority of both samples used heroin as their primary problem drug (self-defined by the client) although this proportion was lower in DTORS (57% *vs* 65%). A lower proportion of DTORS also reported that cocaine or cannabis were primary problem drugs, whereas the proportion defining crack as their primary problem was higher (12% *vs* 8%). Note that NDTMS employs a treatment-specific definition of primary substance, whereas DTORS uses that self-defined by the client. DTORS stratified the sample across tertiles of known CJS referral to avoid the risk of underrepresentation. Careful checks were also made on the presence of CJS involvement in referral mechanisms to ensure that informal referrals from CJS settings were not recorded as self referrals.

Table 3.   Key Characteristics of Baseline Sample

Measure	Baseline DTORS N=1,796
Age (yr): Mean (SD)	32.7 (7.7)
18-24	256 (14)
25-34	839 (47)
35-44	552 (31)
45-54	118 (7)
55+	15 (<1)
Male Gender	1314 (73)
Ethnicity	
White	1569 (87)
Black	64 (4)
Mixed	71 (4)
Asian	56 (3)
Other	31 (2)
Age finished education (yr)	Median=16
10-15	665 (37)
16-17	886 (49)
18+	203 (11)
Family circumstances	
Married or live with partner	676 (38)
Partner takes drugs	268 (40)[1]
Have children under 16[2]	918 (51)
Live apart from children under 16	685 (75)[3]

NB. number (%) unless stated otherwise.
[1] Percentage of those with a partner.
[2] Includes adopted and stepchildren.
[3] Percentage of those with children under 16.

Drug Use

Heroin (64%) was the most commonly used drug in the four weeks prior to baseline (see Fig. **1**). Almost a half of respondents had used crack, or cannabis, or alcohol. Benzodiazepines were used by 25%, other opiates by 22%, unprescribed methadone by 18% and cocaine powder by 15%. The majority (69%) of clients reported poly-drug use (two or more drugs, excluding alcohol) at baseline.

Table 4.   DTORS & NDTMS Samples

	DTORS Baseline N=1,796 (%)	NDTMS New Treatment Population N=86,908 (%)
Age (yr)		
18-24	14.3	19.9
25-34	46.7	45.6
35-44	30.7	27.1
45 +	7.4	7.3
Mean age	32.7	31.8
Male Gender	73.2	73.3
Ethnicity		
White	87.4	87.7
Black	3.6	4.4
Mixed	4.0	2.7
Asian	3.1	4.0
Other	1.7	1.2
CJS Referral Source	34.5	26.0
Main problem drug		
Heroin	56.8	65.3
Other opiates	1.1	3.1
Crack cocaine	11.6	7.5
Cocaine powder	2.6	7.5
Unprescribed Amphetamines	2.5	3.8
Cannabis	4.2	8.6
Ecstasy	0.4	0.4
Hallucinogens	0.3	0.1
Alcohol	5.5	-----
Unprescribed Benzodiazepines	0.7	1.2
Solvents	0.1	0.1

Heroin, crack, or alcohol, were the drugs most likely to be used problematically (self-defined as currently causing a problem by the client) by respondents (72%, 46% and 23% respectively). The majority (57%) defined heroin as their primary problem drug, with a further 12% defining crack as their primary problem. A mean Severity of Dependence Score for heroin of 9.1 (SD 3.7) was observed (max score 15).
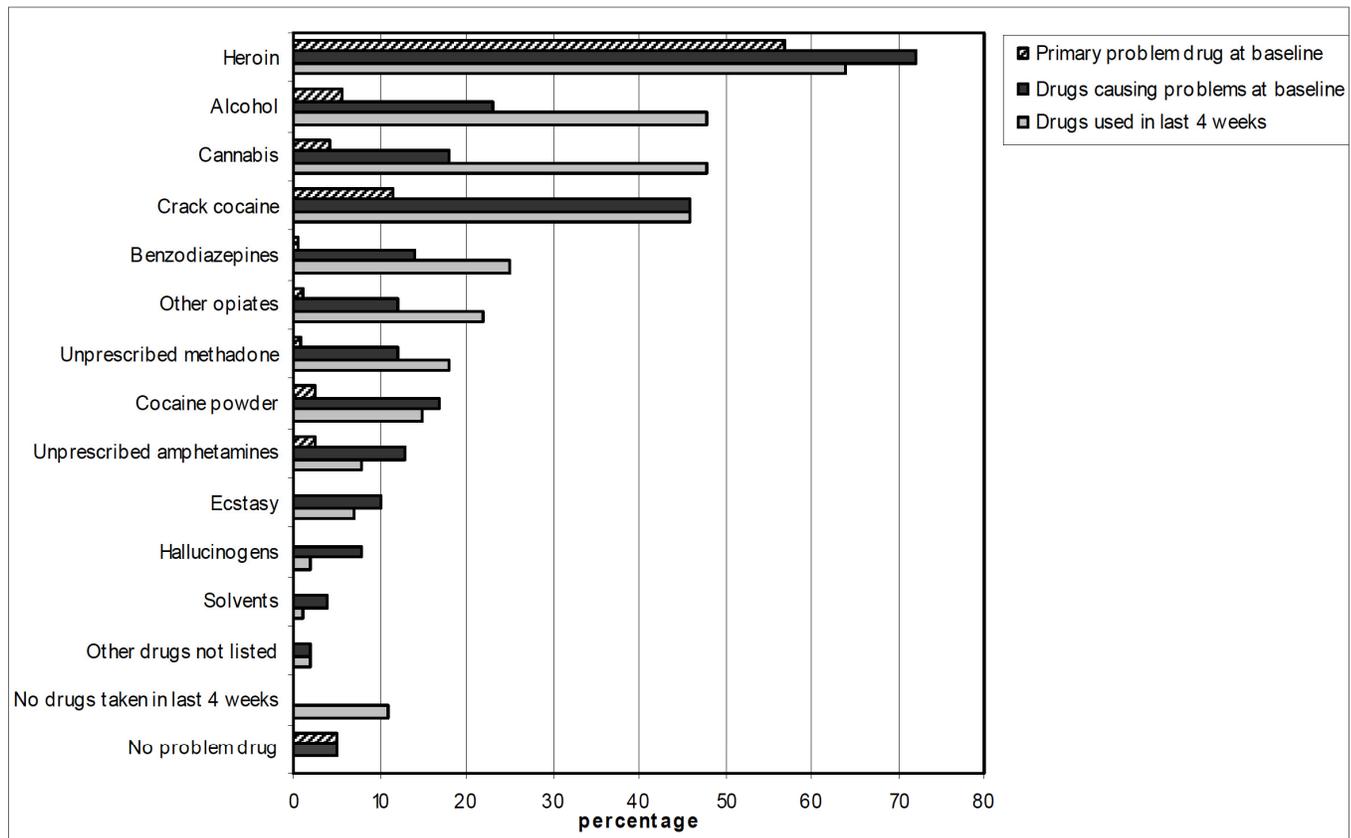
Fig. (1). Drugs used last four weeks, currently causing problems, and causing most problems.

Respondents used drugs with a mean value of £1,213 (95% CI £1,126 to £1,300) in the four weeks prior to baseline.

Offending Behaviour

Fig. (**2**) shows self-reported offending behaviour over the 12 month, and four week, period prior to baseline. Forty-two per cent acknowledged one or more offences during the previous four weeks. Shoplifting was the most common crime (26%), followed by buying or selling stolen goods (19%), dealing drugs (9%) and other stealing (8%).

In the previous 12 months, 72% had committed a crime, with 47% reporting shoplifting, 41% buying or selling stolen goods, 24% other stealing and 23% dealing drugs (Fig. **2**). Respondents committing acquisitive offences obtained a median of £130 (IQR 725) during the previous four weeks (money made, including cash value of any goods obtained). Nearly a quarter (22%) of the sample said that they had offended in the last four weeks to buy or obtain drugs and 17% had offended whilst under the influence of drugs.

Health and Risk Behaviour

Most respondents said their health was fair (31%), or good (29%) but 18% rated their health as poor. Mean scores obtained for the SF-12 were 47.5 (SD 11.1, range 11-66) for physical health (UK norm 51) and 35.4 (SD 12.4, range 6-64) for mental health (UK norm 52). Twenty-eight per cent had previously received treatment for physical health problems, 23% had received a mental health diagnosis, 37% had been referred for mental health treatment, and 28% had received mental health treatment (12% in the last 3 months).

Nine per cent reported having experienced an overdose in the last three months and over half of the sample (52%) was at risk of a poly-drug overdose (taking opiates together with other opiates, benzodiazepines or alcohol). A third of the sample (33%) had injected drugs in the previous four weeks, and among current injectors, 47% reported sharing syringes or other injecting equipment. Almost a half of the sample (46%) had had unprotected sex in the last three months.

Drug Use History, Treatment History, Treatment Goals and Motivation

Participants had a mean age of first drug use of 16yr (95% CI 15.9yr to 16.6yr), with drug use becoming problematic at 21yr (95% CI 20.4yr to 21.1yr). Structured drug treatment was first received at 25yr (95% CI 25.1yr to 25.9yr), with time between onset of (self-defined) problem use and the current planned treatment averaging 13yr (95% CI 12.2yr to 13.0yr). The majority (72%) reported previous community based or residential drug treatment with prior experience of community prescribing most common (59%). Twenty-six per cent had experienced inpatient detoxification treatment, 24% residential rehabilitation, and 19% community based non-prescribing treatment.

The most common treatment goal was to 'stop taking all drugs' (71%). The second most commonly held goal was to 'sort life out' (47%), with other goals including to 'improve health' (20%), 'improve employment chances' (19%), and 'improve relationships' (16%). At baseline, only 7% thought it unlikely that their treatment goals would be achieved by first follow-up. High average scores across the sample were
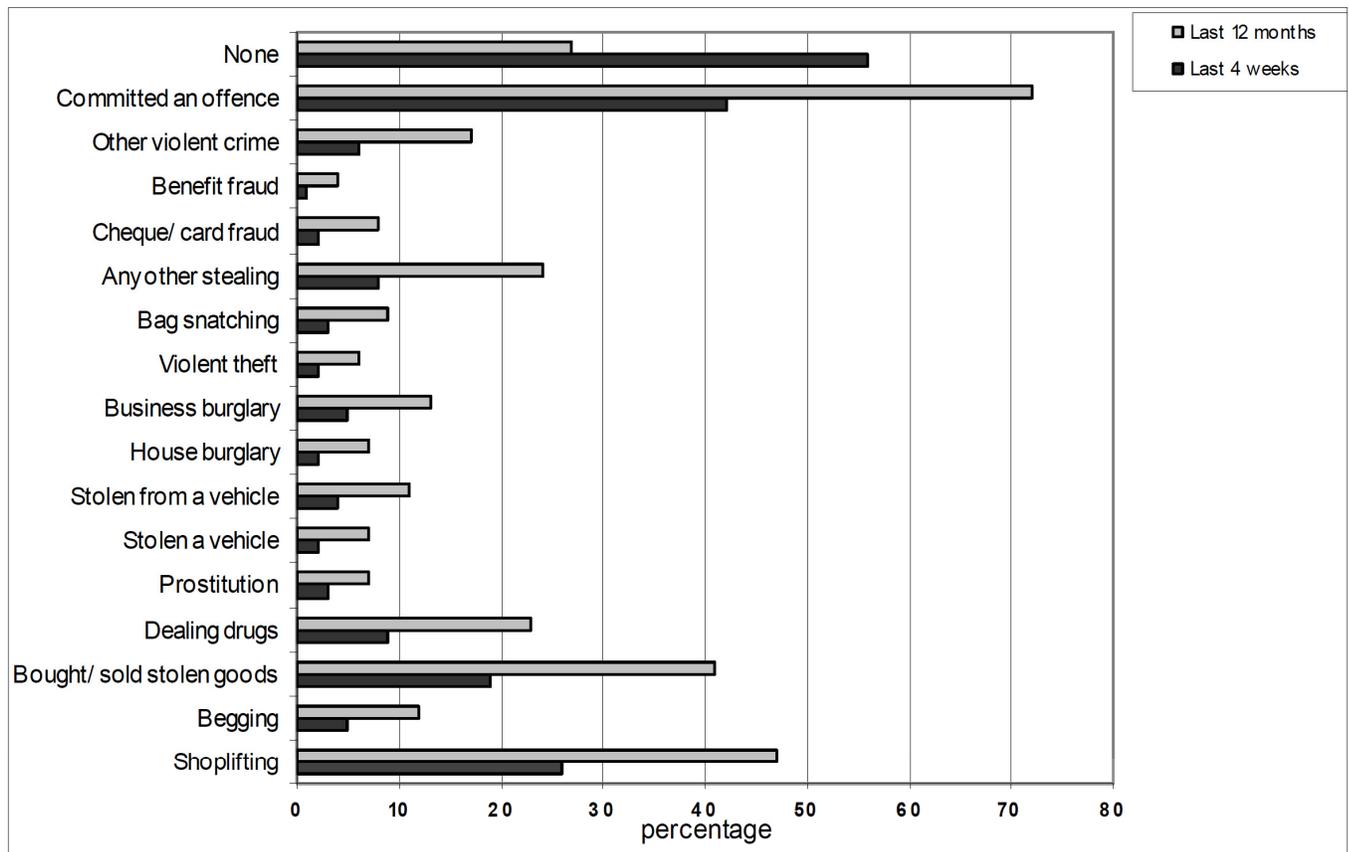
Fig. (2). Offences committed last 12 months, last 4 weeks.

obtained for two of the four CMR subscales indicating high readiness (mean of 31 out of a maximum of 35) and motivation for treatment (22/25), a low level (12/15, scores reversed) of external influences to leave treatment and a mid-range level (9/15) of external pressures (legal and family) to enter treatment. The majority reported wanting help with their drug use (94%) and other aspects of their life (77%) either "very much indeed" or "quite a lot".

CJS-Referral *vs* Non CJS-Referral Differences

Statistically significant differences between CJS-referred participants and those referred *via* other routes are set out in Table **5**. Referral involved a CJS component for 35% of clients, with a third of these attending treatment as a bail condition. Demographic differences between the two groups of interest include CJS-referred clients finishing education earlier (44% *vs* 34% before 16 yr) and lacking stability of address (39% *vs* 22% in any unstable accommodation in previous month). CJS-referred clients were more likely to report problematic use of heroin (75% *vs* 70%), crack (56% *vs* 40%), ecstasy (12% *vs* 9%) and benzodiazepines (17% *vs* 13%) and more likely to report crack cocaine as their primary problem drug (15% *vs* 10%) with a higher crack dependency score (Mean 6.6 *vs* 5.8).

Crack User *vs* Non-Crack User Differences

Crack cocaine use[1] was reported by 61% of the baseline sample; Table **6** sets out statistically significant differences

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[1]Use in the last month or self-defined problematic use.

between this group and non crack users in the sample. Crack users also lacked stability of address (34% *vs* 18% in any unstable accommodation in previous month) and had a much higher drug spend (Median £575 *vs* £217 in previous month). Crack users were more likely than non crack users to report problematic use of a number of other drugs; heroin (82% *vs* 56%), unprescribed methadone (16% *vs* 5%), other opiates (15% *vs* 6%), cocaine (20% *vs* 13%), unprescribed amphetamine (15% *vs* 11%), ecstasy (13% *vs* 5%), hallucinogens (12% *vs* 2%), benzodiazepines (19% *vs* 6%), solvents (6% *vs* 2%) and alcohol (26% *vs* 19%). They were more likely to report heroin as their primary problem drug (61% *vs* 51%) with a higher heroin dependency score (Mean 6.6 *vs* 4.5). Crack using clients were more likely to have committed all categories of crime in the previous 12 months, apart from benefit fraud and other violent crime. Crack users had a longer length of time between their drug use becoming problematic and the current episode of treatment (13 *vs* 4 yr) but they had higher scores on the CMR subscales.

DISCUSSION

DTORS is the largest drug treatment outcomes study conducted in England to date. The study, which took its sample from the whole of England, updates the evidence base, especially important in the context of current policy on reducing the problems associated with drug misuse and known changes in patterns of drug use towards increases in problematic crack use, as confirmed by the DTORS baseline sample. While heroin was the primary drug for the majority, crack use was also common and more so than in earlier

Table 5.　CJS-Referred & Non CJS-Referred DTORS Samples: Significant Differences

	CJS Sample N=620 (35%)	Non CJS Sample N=1,176 (65%)	*p*
Age (yr), Mean (SD)	31.8 (7.1)	32.8 (8.9)	0.014
Male gender	500 (81)	814 (69)	<0.001
White ethnicity	525 (85)	1044 (89)	0.013
Finished education younger than 16yr	270 (44)	395 (34)	<0.001
Any unstable accommodation previous 4wk	239 (39)	258 (22)	<0.001
In employment	25 (4)	142 (12)	<0.001
Legitimate income previous 4wk	Median £228	Median £280	<0.001
Time between problem use and current treatment, Mean (SD)	17.1 (11.0)	18.4 (12.5)	0.032
Drugs reported as problematic			
Heroin	466 (75)	823 (70)	0.020
Crack cocaine	346 (56)	474 (40)	<0.001
Ecstasy	74 (12)	103 (9)	0.032
Unprescribed Benzodiazepines	105 (17)	147 (13)	0.010
Primary problem drug = Crack	92 (15)	116 (10)	0.002
Crack dependency score, Mean (SD)	6.6 (4.7)	5.8 (4.7)	0.023
Offending previous 12m			
Shoplifting	360 (58)	487 (41)	<0.001
Bought/sold stolen goods	315 (51)	429 (37)	<0.001
Stolen a vehicle	60 (10)	67 (6)	0.002
Stolen from a vehicle	96 (16)	97 (8)	<0.001
House burglary	72 (12)	60 (5)	<0.001
Business burglary	124 (20)	107 (9)	<0.001
Violent theft	59 (10)	15 (2)	<0.001
Bag-snatching	76 (12)	84 (7)	<0.001
Any other stealing	183 (30)	241 (21)	<0.001
Cheque/card fraud	65 (11)	85 (7)	0.018
Benefit fraud	36 (6)	42 (4)	0.039
SF-12 physical health score	48.2 (10.8)	47.1 (11.3)	0.008
SF-12 mental health score	38.2 (12.5)	33.8 (12.1)	<0.001
Health rating of "poor"	93 (15)	236 (20)	0.008
Previous mental health treatment	139 (22)	365 (31)	<0.001
CMR subscale, Mean (SD)			
External pressures to enter treatment	10.4 (2.7)	8.8 (3.1)	<0.001
Treatment goals			
Sort out accommodation	76 (12)	105 (9)	0.026
Avoid a sentence	43 (7)	33 (3)	<0.001

NB. number (%) unless stated otherwise.

studies. In addition, a number of negative health indicators in the sample were highlighted, for example, substantial proportions shared syringes or other injecting equipment, had a risk of overdose, reported previous treatment for physical health problems or a previous referral for mental health treatment.

DTORS was an observational, longitudinal cohort study. Study limitations in relation to necessary study design constraints, were therefore shared with previous drug treatment outcome studies. The absence of a control group meant that outcomes could not be compared with a group not receiving structured drug treatment; findings were therefore suggestive of outcomes associated with treatment rather than evidence of causation. As with previous studies, the design

of DTORS has a number of inherent biases. As an observational cohort study, participants were assigned to treatment modalities on the basis of clinical need, suitability and availability. Given such non-random assignment these studies are not able to conclude whether any particular type of drug treatment is more effective than any other. Nevertheless, the DTORS sample is large enough to have sufficient power to detect a pre-defined difference in change in drug spend between CJS and non-CJS groups and the sampling strategy ensured that the full range of treatment services available in each DAT was represented, as were patterns of CJS referral. In contrast to previous studies, DTORS was designed to focus on treatment *seekers* rather than treatment *entrants*. Studies focusing on treatment entrants have an inherent bias towards those stable enough to take up treatment. This feature of the study will have impacted upon response rates as some participants will not have had the stabilising influence of treatment to facilitate follow up.

The target interview length (45 minutes) introduced constraints on the choice of outcome measures, although the questionnaire was comprehensive in its coverage and subject to piloting and cognitive testing prior to use. DTORS was reliant on the accuracy of self-report data, demonstrated to have a reasonable degree of correspondence with objective measures [29,30]. Saliva test checks were used in a random subsample of respondents. Steps were also taken to encourage participants to supply accurate responses, most importantly, by using project interviewers who were entirely independent of treatment services. Previous studies, enlisted drug treatment workers to collect study data [31]; however, in that design clients would certainly have been aware of the possible negative impact on treatment associated with admitting continuing substance use to clinic staff.

The DTORS sample was broadly representative of the population starting drug treatment. The extent to which the DTORS sample is representative of the drug-using population, as a whole, is unknown, although indicators, such as the British Crime Survey [32], suggest that users of drugs other than opiates and crack cocaine are under-represented in the drug treatment population.

The mean age of the DTORS sample at baseline (32.7 yr) was somewhat higher than that in NTORS (29.3 yr), consistent with expectations of an ageing drug treatment population [33]. Similar proportions of clients were male (73% *vs* 74%) and white (87% *vs* 91%). As in previous drug outcome studies heroin dependence was reported as the primary problem by the majority of DTORS respondents, alongside significant poly-drug use. Crack cocaine, cannabis, or alcohol was commonly used and despite the sample being characterised by problematic use of heroin, a sizeable minority (12%) reported crack as their primary drug problem.

High rates of offending prior to treatment were reported; the most common crime being shoplifting, as was the case in the intake sample of previous studies [7]. Over one in five reported committing a crime in the month prior to baseline in order to buy or obtain drugs. Drugs with a mean value of £1,213 were used in the month prior to baseline and a median of £130 was obtained *via* acquisitive offences during the same time period.

Mean SF-12 baseline health scores were higher than those obtained in ATOS [34] at intake (47.5 *vs* 43.7 for physical health and 35.4 *vs* 31.3 for mental health). Psychological problems in the sample are indicated by over one in three having a previous referral for mental health treatment. It has long been known that at least 50% of clients in drug treatment have co-morbidity with psychiatric conditions [35-37]. This ongoing problem is in need of addressing further at a treatment level. The proportion experiencing an overdose (9%) in the previous 90 days was similar to that seen in contemporary work elsewhere in the UK (11%) [38] but over a half of the sample had a poly-drug overdose risk resulting from taking opiates together with other opiates, benzodiazepines or alcohol. A third of this sample report injecting drugs in the month prior to baseline. A higher proportion of DTORS current injectors (47%) reported sharing syringes or other injecting equipment compared with 23.5% of injectors in NTORS [7]. Some have commented on a worrying complacency in England with regard to risks associated with sharing, especially HIV [39], following the major public health initiatives of the 1980s and '90s. Low levels of HIV awareness may have led to increased levels of risky behaviour. These findings should be of concern to policy makers and practitioners, alike. The proportion reporting poly-drug use was high (69%, excluding alcohol). European data point to 57% of problem drug users entering treatment being poly-drug users [40]. Data reported in Fig. (**1**), however, illustrate that use of other drugs is not considered to be a problem by the majority; rates of problematic use are considerably less than usage rates for a number of substances. It may be the case that clients are less likely to report use of certain substances as problematic if they believe that effective treatment for use of that substance is not available. Almost three-quarters of the baseline DTORS sample had prior experience of community based or residential drug treatment.

The CJS was involved with the referral of 35% of the sample. Treatment drop-out rates may be higher in CJS-referred clients [12,41]. Drug misusing offenders referred *via* the CJS might be expected to have different levels of treatment motivation; a strong predictor of a range of outcomes, including retention in treatment [42-47], raising questions about the effectiveness of drug treatment for this client group. It is worth noting the absence of reduced baseline motivation levels in CJS- compared with non CJS-referred clients in this sample. CJS-referred clients did differ in a number of ways from those referred into treatment *via* other routes; these differences may impact upon drug treatment outcomes. For example, CJS-referred clients were younger, with less formal education and higher levels of unstable accommodation. This group reported a greater proportion of problematic use of a number of substances; of importance is the higher proportion reporting crack as their primary problem drug. More positively, clients referred *via* the CJS had better health according to a number of indicators than other participants and did not have higher levels of risky behaviours.

A number of important differences were observed between crack using participants and other clients in the sample. Crack users had higher levels of problematic use of all drugs, apart from cannabis, and higher dependency on

Table 6.   **Crack-Using & Non Crack-Using DTORS Samples: Significant Differences**

	Crack Sample N=1,101 (61%)	Non Crack Sample N=695 (39%)	*p*
Age (yr), Mean (SD)	33.1 (7.3)	32.2 (8.3)	0.014
White ethnicity	937 (85)	632 (91)	<0.001
Any unstable accommodation previous 4wk	369 (34)	128 (18)	<0.001
In employment	62 (6)	105 (15)	<0.001
Legitimate income previous 4wk	Median £252	Median £295	<0.001
Drug spend previous 4wk	Median £575	Median £217	<0.001
Age at problematic drug use (yr), Mean (SD)	20 (6.3)	21 (6.5)	0.008
Problem use to current treatment (yr), Mean (SD)	13 (7.0)	4 (5.9)	0.003
Previous drug treatment			
Inpatient detoxification	341 (31)	124 (18)	<0.001
Residential Rehabilitation	316 (29)	114 (16)	<0.001
Community prescribing	701 (64)	361 (52)	<0.001
Community non-prescribing	246 (22)	102 (15)	<0.001
Drugs reported as problematic			
Heroin	903 (82)	386 (56)	<0.001
Unprescribed Methadone	177 (16)	35 (5)	<0.001
Other opiates	168 (15)	40 (6)	<0.001
Cocaine powder	222 (20)	88 (13)	<0.001
Unprescribed Amphetamine	160 (15)	77 (11)	0.035
Ecstasy	146 (13)	31 (5)	<0.001
Hallucinogen	128 (12)	15 (2)	<0.001
Alcohol	288 (26)	129 (19)	<0.001
Unprescribed Benzodiazepines	211 (19)	41 (6)	<0.001
Solvents	69 (6)	13 (2)	<0.001
Primary problem drug = Heroin	666 (61)	355 (51)	<0.001
Heroin dependency score, Mean (SD)	6.6 (5.1)	4.5 (5.2)	<0.001
Offending previous 12m			
Shoplifting	614 (56)	233 (34)	<0.001
Begging	169 (15)	45 (7)	<0.001
Bought/sold stolen goods	530 (48)	214 (31)	<0.001
Drug dealing	274 (25)	139 (20)	0.017
Prostitution	97 (9)	26 (4)	<0.001
Stolen a vehicle	96 (9)	31 (5)	0.001
Stolen from a vehicle	152 (14)	41 (6)	<0.001
House burglary	98 (9)	34 (5)	0.002
Business burglary	178 (16)	53 (8)	<0.001
Violent theft	94 (9)	21 (3)	<0.001
Bag-snatching	128 (12)	32 (5)	<0.001
Any other stealing	307 (28)	117 (17)	<0.001
Cheque/card fraud	120 (11)	30 (4)	<0.001
Income obtained from crime previous 4wk	Median £200	Median £60	<0.001
Committed crime to buy drugs	309 (28)	92 (13)	<0.001
Committed crime under influence of drugs	243 (22)	68 (10)	<0.001
Health rating of "poor"	224 (20)	105 (15)	0.005
Poly-drug[2] use	895 (81)	338 (49)	<0.001
Overdose in previous 3m	107 (10)	48 (7)	0.039
Sharing drug taking equipment	212 (19)	65 (9)	<0.001
Drug injecting	428 (39)	165 (24)	<0.001
Poly-drug overdose risk[3]	678 (62)	254 (37)	<0.001
CMR subscales, Mean (SD)			
External pressures to enter treatment	9.8 (3.0)	8.7 (3.0)	<0.001
External pressures to remain in treatment	12.1 (2.1)	12.3 (2.0)	0.025
Motivation	22.4 (3.2)	21.3 (3.6)	<0.001
Readiness for treatment	31.0 (3.6)	30.5 (3.9)	0.008
Treatment goals			
Contact with children	118 (11)	53 (8)	0.030
Sort out accommodation	130 (12)	51 (7)	0.002
Avoid a sentence	59 (5)	17 (2)	0.003

NB. number (%) unless stated otherwise.

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[2]Use of more than one type of drug, excluding alcohol.

[3]Taking opiates together with other opiates, benzodiazepines, or alcohol.

heroin, alongside their crack use, in addition to a median drug spend twice that of non crack users. The group also had higher levels of risky behaviour and lack of accommodation stability, along with higher levels of criminal involvement and a higher income from crime. Despite being characterised by patterns of drug use and behaviour which might impact negatively on successful treatment outcomes crack users had somewhat higher motivation scores than non crack users. As expected in a cohort of drug treatment seekers, almost three-quarters of the DTORS sample, as a whole, reported the treatment goal of wanting to stop taking all drugs. High treatment readiness and motivation scores also characterised the total DTORS sample at baseline.

The DTORS baseline sample highlights the many problems associated with drug misuse that characterise individuals seeking drug treatment in England. Future DTORS papers will provide valuable information on the effectiveness of current structured drug treatment in reducing the harmful behaviours associated with problem drug use. In particular, future papers will examine treatment outcomes for CJS-referred, and crack-using participants. Comprising the most recent and robust national outcomes of structured drug treatment, with sampling representative of the situation in England, the findings of DTORS will significantly contribute to the evidence base for the development of national drug treatment policy decisions.

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COMPETING INTERESTS

The authors declare that they have no competing interests.

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