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Sondhi, A. and Williams, E. (2017) Health needs and co-morbidity among detainees in contact with healthcare professionals within police custody across the London Metropolitan Police Service area. *Journal of Forensic and Legal Medicine*, 57. pp. 96-100. ISSN 1752-928X.

Link to official URL (if available):

<https://doi.org/10.1016/j.jflm.2017.07.012>

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Health needs and co-morbidity among detainees in contact with Healthcare Professionals within police custody across the London Metropolitan Police Service area

Abstract

Aims: Detainees requiring access to healthcare services in police custody have been shown to suffer from poor physical and mental health, often exacerbated by substance misuse. This study examines the extent and nature of health needs in police custody across the Metropolitan Police Service (MPS), London.

Methods: A survey (n=1,657) was administered by Healthcare Professionals (HCP) for one month in 2015 across all MPS custody suites representing a 73% response rate. A logistic regression model was created using four binary outcomes (whether a detainee was a drug user, had mental health issues including self-harm and had an alcohol use disorder) with ten prognostics to test for co-morbid associations. A multiple imputation method using chained equations was used to manage missing cases.

Findings: High rates of physical health conditions, drug use, problematic alcohol use were noted but are within the upper range of existing studies. Mental health, self-harm and overall substance misuse levels (illicit drug user and a current drinker) were shown to be higher than other published studies. The logistic regression model found statistically significant associations between drug use, alcohol consumption and mental health including self-harm. Age was also found to be a key confounding factor. Physical health was broadly negatively associated with the four main outcomes.

Discussion: Levels of need for health interventions among the detainee population in London are broadly consistent with other European centres. There is a need for police custody staff to consider detainees' dual diagnosis needs. The development of integrated interventions alongside the enhanced clinical management of alcohol, drug use and mental health was considered.

Keywords: Police custody healthcare, health needs, dual diagnosis.

1. Introduction

Detainees entering police custody and who engage with health services are widely perceived to be highly vulnerable, chaotic and with limited experience of accessing community-based specialist services¹. The point of arrest is often a low point for detainees where a confluence of poor lifestyle and offending often acts as a predictor of poor self-management of ill-health, alongside a lack of compliance with prescribed medication^{2,3}.

Greater levels of morbidity amongst detainees in police custody compared to the general population have been highlighted⁴. The point of arrest is a pivotal point to intervene due to the extent of complex co-morbidities present among the detainee population. Studies have shown the over-representation of substance misuse issues among detainees in police custody^{5,6,7} that emphasises associations across alcohol intoxication, illicit drug use and mental health disorders^{10,11,12,13,14}. The extent and nature of substance misuse varies considerably across detainee populations in part due to the definitions used by researchers, encompassing any intake; frequency of use; and the extent of abuse or dependence. Furthermore, a review of the literature examined twenty-eight studies to create an overall sample size of 12,000 detainees estimated mental health need (as a proportion of a clinician's caseload) was one-fifth, substance misuse around one-half with three-quarters (74%) of detainees requiring medication¹⁵.

Physical health problems are also noted among the detainee population with higher than expected levels after adjusting for age, of conditions such as asthma, diabetes and chronic infections such as hepatitis, HIV and tuberculosis^{4,10,16} with worsening health problems reported among older detainees^{14,17}. Moreover, these co-morbidities are further exacerbated by a range of "social problems" that encompass housing, finance, employment and interpersonal issues¹³. One study of 604 illicit drug users held in police custody in France highlighted the link between more problematic

use of substances with increased age, unemployment, homelessness, a history of medical problems and worsening mental health¹⁴. Female detainees were also noted as over-represented in this problematic group.

In the UK, the risk assessment undertaken by a custody officer at initial reception into police custody is a key point in determining risk to a detainee in terms of self-harm and withdrawal from drugs and alcohol, although it has been shown that this process can miss key diagnoses and improvements can be made by enhancing the assessment's diagnostic sensitivity^{18 19}. In a UK context, the Identification of acute health-related diagnoses are essential for referrals to either an embedded or on-call healthcare professional (HCP) for immediate attention and to a range of custody-based professionals offering liaison and diversion schemes addressing mental health, illicit drugs (such as the Drugs Intervention Programme) and alcohol arrest referral schemes.

This study presents an analysis derived from a survey of HCP activity which comprised an assessment of detainee health need undertaken across the Metropolitan Police Service (MPS) during 2014-2015 geographical area to include all London boroughs excluding the City of London (which has its own separate police force).

2. Methods

2.1 Consent and Ethics

The study formed part of a Health Needs Assessment commissioned by NHS (England) in partnership with the MPS. An application was made to the NHS Health Research Authority

in July 2014 that stated that this study fell within the 'service evaluation' definition²⁰. Patients were not directly interviewed and this paper is based on secondary interrogation of data collected by HCPs. Ethical oversight and governance was provided by the NHS England Project Board.

2.2 Settings

The study surveyed detainees assessed by HCPs across the MPS area during one-month in 2015. At the time of the study, 72 police custody suites with 992 police cells were operationally available (10 suites were non-operational) across 33 London boroughs covering a population of 8,664,953²¹. At the time of the study, 19,235 individuals had been processed in one month across these sites. The City of London within the financial district of London has its own police force and operates independently from the MPS.

2.3 Schedule

A questionnaire was designed following consultation with HCPs, NHSE and MPS leads to create a short and simple schedule that could be completed quickly, at no more than two pages length, as any greater length was considered onerous within a busy custody setting. Practitioners were instructed to complete the questionnaire for all detainees that they came in contact with during one month in 2015. If the patient required subsequent care within the same treatment episode (e.g. within the same arrest event) then a new questionnaire was not to be completed. If however, the same detainee returned for a subsequent and different arrest event (if the same person returned after being seen previously by a HCP) then a new questionnaire was to be completed as the study was keen to determine the extent and nature of need at each treatment point or episode. It was not possible to calculate the extent of multiple contacts for the same individual (or double-counting) with HCPs as the data collected was anonymised. No personally identifiable information was

collected as part of the survey that also removed the possibility of cross-reference with police management information systems. Information collected included the initial need identified for call-out; basic patient demographics; identified clinical need; medical history and engagement with other services including general practitioner (GP) registration; prescribed medication and a brief outcome from the consultation. For this one month period, 1,657 questionnaires were returned and entered onto a bespoke database for secondary analysis. Based on information held on the MPS management information system (the National Strategy for Police Information System), there were 2,257 episodes where a HCP has been called out for treatment which represents a 73% participation rate. There was an even split of returned questionnaires by inner-London (52%) compared to outer London (48%) with Inner South-East London slightly over-represented in the survey and Inner West London marginally under-represented.

2.3 Procedures

An initial analysis²² was undertaken for the Health Needs Assessment. This analysis was enhanced by dealing with non-response through use of three probability models using a chained equations method and by recalibrating variables that exhibited multicollinearity. Preliminary tests on the explanatory variables were undertaken and a revised set of fourteen indicators (compared to nineteen used previously) were created based on initial chi-squared tests. Fourteen explanatory variables with four binary outcomes were used including whether a detainee was a drug user (a new composite variable); had mental health issues; being at risk of an alcohol use disorder (AUD) defined as being a problematic drinker via the Alcohol Use Disorder Identification Test (AUDIT); and whether the detainee had self-harmed. Ten predictor variables were included: detainee age; history of allergies; history of previous medical operations; GP registration and physical health diagnoses of asthma, diabetes mellitus, epilepsy, hypertension, musculoskeletal problems or whether they

suffered from an injury. The conditions used to form the model were chosen to reflect the likelihood of reported presentation to a HCP.

2.3 Sample Characteristics

The sample seen by HCPs were overwhelmingly male (81%, n=1,342) with a modal age of 25-34 years (29%, n=481). More than half of the sample were white (54%, n=895) and around one-fifth (22%, n=365) were recorded as Black with 11% (n=182) reported as Asian.

3. Analysis

3.1. Levels of Need

The reason for a HCP intervention is shown below in Table 1. Fitness to be detained or fitness to be interviewed comprised 70% (n=1,159) of all call-outs. Substance misuse including drink or drug driving formed one-third (33%, n=550) of call-outs, with mental health issues one-fifth (20%, n=334). Injuries (22%, n=369) and issues with a detainee's medication (21%, n=347) were also noted.

[INSERT TABLE 1 ABOUT HERE]

HCPs were asked about the nature of a detainee's presenting need (Table 2). The findings suggest that the levels of physical health need are consistent with the range presented in the international literature although at the upper rate. In contrast, over half (54%, n=892) of the survey sample were reported to be on medication which is less than the pooled estimate derived from a review of the literature¹⁵. It was not possible to discern from the survey however, whether the detainee was compliant with their medication and whether they had it on their possession at the time of arrest.

High levels of registration with General Practitioner (GP) primary care services were also noted (82%, n=1,356) although this was not cross-referenced to GP Summary Care Records for confirmation. This level of GP registration is consistent with an evaluation undertaken in one London borough²³ but is higher than figures reported elsewhere for example, in the Netherlands⁴.

[INSERT TABLE 2 ABOUT HERE]

The survey found higher reported rates for any mental health condition (38%, n=628) including self-harm (21%, n=350) compared to existing estimates¹⁷ although these estimates vary due to the varied definitions to capture mental health issues. Drug use comprised one-third (33%, n=547) of a HCP's caseload with 21% (n=348) being Class A users. Drug use levels were shown to be consistent with other studies of the detainee population^{5 10}. Two-thirds (66%, n=1,094) had drunk alcohol at the point of arrest, and of these 37% (n=513) were defined as having a potential AUD as measured by AUDIT which falls within the upper range reported by other studies^{5 13}. Overall, over three-quarters (77%) of detainees known to HCPs were either current drinkers and/or users of illicit drugs. This compares to an estimated half (50%) of all detainees seen by a HCP who have substance misuse issues¹⁷ or 60% noted in one recent study across one London borough²³.

[INSERT TABLE 3 ABOUT HERE]

3.2. Logistic Regression Model

The study also examined the associations between key diagnoses to test for the extent of co-morbidities. Out of 1,657 patients surveyed, 1,405 (85%) reported no missing data. A multiple imputation method was used using chained equations. Three probability models were created for the four imputed variables including the predictive mean for matching detainee age (a numerical

discrete variable from 12 to 84 years); a dichotomous binary variable for an AUD; multinomial for both allergies and previous operations as categorical variables (No/Yes/Don't Know). The common set of prognostics in all four models contained the ten remaining variables with complete cases. The chained equations method included as prognostics all other variables being imputed. Fifty imputations were conducted and convergence was assessed by ensuring that the ratio of multicollinearity error to coefficient standard error was below 5% for all regression coefficients. A binary logistic regression model was fitted (Table 4 below) for each one of the four dichotomous outcomes and a prognostic was declared statistically significant at $p < 0.05$ (working at 5% significance).

[INSERT TABLE 4 ABOUT HERE]

After adjusting for all ten variables considered as independent prognostics, the findings suggest that being a drug user, having a mental health issue, diagnosed as having an AUD and self-harm are all associated with each other. In other words, detainees diagnosed as being a drug user is significantly more likely also present with a co-morbid AUD and mental health issues including self-harm. Detainee age was significantly associated with all four outcomes, in that older detainees were more likely to present with mental health issues and an AUD. Conversely, younger detainees were more likely to be drug users and have self-harmed. The analysis also suggests that physical health needs are broadly negatively correlated with the four outcomes of drug use, mental health (including self-harm) and an AUD. Reporting an injury to a HCP was also shown to be negatively correlated with any of the main outcomes. This finding implies that detainees presenting with the four outcomes are less likely also to report co-morbid physical health issues. The exceptions to this are a positive correlation between drug use and epilepsy (Odds Ratio (OR) 1.72, $p = 0.044$); having a history of previous operations and an AUD (OR 1.55, $p = 0.01$) and suffering from allergies and mental health (OR 2.49, $p < 0.0001$). Detainees who presented with mental health issues were shown to be more likely to be

registered with a GP (OR 1.93; $p < 0.0001$). Reporting a musculoskeletal problem was not significantly associated with any of the outcome measures.

4. Discussion

This study has shown that the levels of need among detainees seen by a HCP for physical health conditions alongside drug and alcohol use based on one month's sample of detainees with London are broadly consistent with other international studies (although at an upper level of comparative estimates). Detainees presenting with mental health issues including self-harm and substance misuse (drug and alcohol taken together) were shown to represent a higher level of a HCP's caseload that comparative studies elsewhere.

The reasons for higher level of drug and/or alcohol use are unclear and may indicate actual levels of need reflecting changes in London's detainee population¹⁶. For instance, a study describing the detainee population in Amsterdam suggested that differentials noted in alcohol consumption may be a function of ethnic composition of the detainee population¹³. There may also be variations in the definitions used to describe certain conditions, especially mental health and substance misuse. There may be a difference between a clinical diagnosis of a mental health condition undertaken by a health professional and suspicions raised by police staff recorded on a risk assessment. Detainees may also be more willing to divulge physical or mental health conditions and their previous medical history to medical staff rather than to police or non-clinical staff. Use of clinical audits and secondary interrogation of management information systems (clinical or otherwise) may be subject to issues with data quality and biases inherent in untrained operational police staff capturing clinical information^{8 22}. The definition of a condition may also depend on how the research methods and instruments used. For example, substance misuse dependence may depend on a HCP's clinical judgement of 'dependency' or 'alcoholism'²⁴ or whether a validated schedule has been used such as AUDIT or the Severity of Dependency Scale. It is hypothesized that the differences in the levels of

need for most conditions may be related to the variations in methodological approaches used to measure detainee health in police custody.

The analysis also demonstrated complex interactions with detainee age - older detainees were shown to exhibit co-morbid associations between mental health and problematic alcohol use with a younger detainee age correlated with drug use and self-harm. This may have implications for the type of interventions considered within a custody setting. Use of multiple brief interventions within this setting has been suggested²⁵ which may allow the possibility of tailored approaches for different age-groups by substance type and its correlates.

The final key finding from this study identified associations between mental health (including self-harm), drug and alcohol misuse which is consistent with the wider literature. These dual diagnosis conditions were also shown broadly (with some exceptions) to be negatively correlated with wider physical health issues, despite the relatively high rates reported for these conditions. This may highlight the primacy of treating mental health and substance misuse conditions on arrival into police custody confirming results from studies elsewhere in Europe¹¹. The lack of co-morbid physical health conditions may be related to the relative youth of the detainee population, with 29% reported as being aged between 25-34 years and overall, two-thirds (66%) of detainees held across the MPS area during the time of the study were aged under 35 years¹⁹. The need to consider the links between alcohol, drugs and mental health will have implications for the management of detainees by police custody staff in that presentation for one of the three conditions, are likely to include the other two issues as well. As a consequence, police custody staff will need to consider how best to manage detainees presenting with a combination of illicit drug use, alcohol consumption and mental health need as well as developing effective and integrated referral pathways that meets this level of need. Pathways encompassing the range of liaison and diversion services that operate a 'silo' approach (e.g. separate services for alcohol, drugs and mental health)

are therefore unlikely to be an efficient use of resources. Moreover, services outwith of police custody (including links to interventions provided across the rest of the criminal justice system including prison-based service) will need to be integrated to treat detainees with complex dual diagnosis needs, including recalibrating community-based provision to ensure the effective management of alcohol-drugs-mental health needs.

Study Limitations

In addition to the issues identified in relation to the methodology highlighted above, the paper represents a survey covering one month across London (excluding the City of London). Although the sample size is large, it is possible there may be seasonal variations in presenting health need that would not be recorded through this approach. The levels of needs presented will also be affected by the extent to which conditions are identified and referred to a HCP with some presentations being “hidden”. In addition, there were limits placed on the questions asked as part of the survey emphasizing brevity. Understanding the extent of “social problems” were not included and is a gap in the analytical framework.

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Tables

Table 1: Reason for Healthcare Professional Call-Out, n=1,657

Call-out reason	Number	Percentage
Alcohol	272	16%
Drink/drug driving	24	1%
Drugs	254	15%
Forensic sampling	36	1%
FTBD/FTBI	1,159	70%
Injuries	369	22%
Mental health	334	20%
Medications	347	21%
Other	206	12%

Table 2: Reported physical health conditions, n=1,657

Physical health conditions	Number	Percentage
Asthma	150	9%
COPD	23	1%
Diabetes	117	7%
Epilepsy	63	4%
Hepatitis	27	2%
Hypertension	118	7%
HIV	14	1%
Previous heart attack	19	1%
Stroke (CVA/TIA)	8	<1%
Other conditions	204	12%
Musculoskeletal	72	4%
Registered with a GP	1,356	82%
Currently medicated	892	54%

Table 3: Reported extent of substance misuse and mental health conditions, n=1,657

Condition	Number	Percentage
Mental health condition	628	38%
-Depression	311	19%
-Psychosis	25	2%
-Schizophrenia	92	6%
-Bipolar	51	3%
-Undefined	60	4%
-Self-harm	350	21%
Drug misuse		
-Amphetamines	11	1%
-Cannabis	240	14%
-Cocaine	144	9%
-Crack-cocaine	165	10%
-Heroin	235	14%
-Street opiates	15	1%
-Street benzodiazepine	20	1%
-Legal highs	3	<1%
-Other drugs	26	2%

-Any drug use	547	33%
-Class A	348	21%
Alcohol		
-Any alcohol use	1,094	66%
-AUDIT-C +	613	37%
Use of any substance	1,276	77%

Table 4: Point estimates of odds ratios for those prognostics whose p-value < 0.05

Prognostic	Modelled binary outcomes			
	<u>Drugs user</u>	<u>Mental health issues</u>	<u>Problem alcohol drinker</u>	<u>Self-harmed</u>
Drugs user	NA	1.36	1.57	1.63
Mental health issues	1.38	NA	1.31	8.87
Problem alcohol drinker	1.57	1.31	NA	1.60
Self-harmed	1.61	8.88	1.58	NA
Patient age	0.99	1.02	1.02	0.97
Allergies	-	2.49	0.89	0.50
Previous operations	-	-	1.55	
GP registered	-	1.93	-	-
Asthma	0.97	-	-	-
Diabetes	-	0.37	0.47	
Epilepsy	1.72	-	-	-
Hypertension	0.42	-	0.46	-
Musculoskeletal	-	-	-	
Injuries	0.47	0.53	-	0.68

The annotation (-) denotes a non-statistically significant level. Note that the entries in the top 4 rows are (almost) symmetric across the 4 columns. This is expected, as all four outcomes are binary and their pairwise association is interchangeable.