An overview of the prison population and the general health status of prisoners

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IN BRIEF

- Stresses there are similarities between the healthcare needs of the prison population and the general public but prisoners exhibit poorer general and oral health than age matched non-imprisoned individuals.
- Highlights prisoners' health is compromised by their unhealthy behaviours such as tobacco smoking, alcohol and drug use, high sugar diets and poor engagement with routine oral healthcare services.

This article is the first in a series of four, which explore the oral and dental health of male prisoners in the United Kingdom. The series comprises: an overview of the general and oral health status of male prisoners, a discussion on how multi-disciplinary team working can be used to benefit the care of patients in prison environments and a description of the future planning of dental services for male prisoners. The oral health of prisoners is linked to their general health status, due in part to the presence of common risk factors such as smoking, drinking alcohol and in some cases use of recreational drugs, poor dietary and poor oral hygiene habits. Barriers to healthcare services can all have an effect on oral disease in this group. This paper highlights some of the common medical problems that oral healthcare providers face when treating prisoners in male UK prison establishments.

INTRODUCTION

In this series where UK data has been available for a prison population, we have utilised it. In some instances US data has been used. US prisons (prisons operated by the federal government and states) have different systems by housing convicted and unconvicted prisoners but the populations come with similar social difficulties and backgrounds.

Previous research has investigated prisoners' oral and general health separately and reported that while there are similarities between the healthcare needs of the prison population and the general public, prisoners have usually poorer general and oral health than age matched non-imprisoned individuals. Their health might worsen in a prison environment as certain aspects of imprisonment (such as lack of activity and the stress associated with imprisonment) may impact upon any underlying conditions.

Mental illness, such as depression,^{1,2} and infectious disease are the commonest conditions in prisoners and present at higher levels compared to the general population.^{2,3} There is some evidence to suggest a

relationship between clinical depression and oral health problems.

Other chronic conditions seen in prisoners are hypertension, epilepsy, learning difficulties, diabetes, gastrointestinal disorders and musculoskeletal problems.

Payne-James *et al.*⁴ noted that 5% of male detainees in police custody in London, with a mean age of 33.9 years, presented with one of the previously mentioned conditions.

Although the exact reasons for prisoners' poor health are unknown, it is speculated that factors such as poorer compliance with healthcare treatment/prevention and poorer utilisation of services can contribute. In one study⁴ of 70 detainees, 35 were either not taking their prescribed medication regularly or at all. Poor engagement and compliance with healthcare services is a significant barrier to treatment success.⁵ It is estimated that 20% to 80% of patients fail to self-administer their medication as prescribed.⁶ A significant proportion of hospital admissions can be attributed to medication non-compliance.⁷ The other contributing factors to prisoners' poor health can be shortcomings in treatment and aftercare provision.⁸ Payne-James *et al.*⁴ mentioned that 29.8% of detainees had no contact with a general medical practitioner.

Prisons could offer prisoners opportunities to get access to care and to address their health issues.⁹ However, as there is a high demand for healthcare services, there is a possibility that not all prisoners will get medical treatment in a timely fashion.

Wilper *et al.*² noted that significant numbers of prisoners in the US with medical problems (federal inmate [13.9%], state inmate [20.1%] and jail inmate [68.4%]) had not had a medical examination since imprisonment.

Prisoners' health is also compromised by their unhealthy behaviours such as tobacco smoking, alcohol and drug use, and high sugar diets.¹⁰ These behaviours might have an impact on the success and long-term prognosis of dental treatment.

DEMOGRAPHIC CHARACTERISTICS OF THE UK PRISON POPULATION

Prisons in England and Wales

There were 138 prisons in England and Wales in 2005.¹¹ Nineteen new prisons have been built since 1995 due to an increase of the prison population. Eleven prisons are privately run. Overcrowding is very common in prisons in England and Wales with figures in 2007 showing that the prison population was 110% of the certified normal accommodation.¹² However, the number of prison establishments in the UK is decreasing partly due to more emphasis being placed on rehabilitation.

Table 1 presents the ways prison establishments are classified according to Flynn.¹³ A prison could therefore be categorised under several of these groups. For example, a prison could be described as a male, adult, remand centre. A remand prison comprises of two groups of prisoners: those awaiting trial by magistrates' court and those who have been convicted but not sentenced.¹⁴

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This is important because traditionally the difference had implications for the duty of care owed to the prisoner – once convicted a prisoner had full access to prison healthcare services, whereas those on remand, before trial, did not. The care provisions for prisoners are currently under review.

The prison population

The resident prison population is increasing worldwide: an estimated figure of 2.1 million in Europe,¹⁴ 2.3 million in the USA and 10 million people around the world residing in prison.⁸ This compares with the correctional (non-resident) population in the USA, which by end of 2011 was seven million people in total, where approximately five million were under community supervision.¹⁵ The contributing factors for increasing prison populations are violence, poverty, migration and drug use.¹⁴ In the USA prisons (run by the state) and jails (run by counties or cities) differ. Prisons generally house long-term prisoners (>2 year sentences) and jails short-term prisoners.¹⁵

The prison population in England and Wales was reported to be 84,431 in March 2013.¹⁶ In 2002, 81% of the total prison population in England and Wales were sentenced. Eighteen percent were on remand. Of all remand prisoners in prison service establishments, 77% were aged 21 and over. The prison population is much younger than the general population with most prisoners (96%) being aged between 21 and 49 years. In 2003, the average age of the remand population was 29.¹⁷ Although the majority of prisoners are young, mostly in their 20s and 30s, the number of prisoners under age of 18 is on the increase (having doubled in the last decade).¹⁸ With an increasing prison population a higher demand will be placed on prison health services.

The prison population: education and employment

UK prisoners generally have less work experience, live in poorer housing conditions outside prison and have fewer educational qualifications.^{19,20} About half of prisoners have no educational qualifications at all and only a minority are educated to A level or beyond.²¹

The low educational attainment of prisoners may relate to learning difficulties among those who are convicted. A report from the British Dyslexia Association and HM Young Offender Institution showed that dyslexia among offenders is between 31% and 52%. This is much higher than the general population (5–10%).²²

Although there is currently no exact figure available as to how many offenders have learning disabilities,²³ it is estimated that for

a prison population of 80,000, there could be 5,500 prisoners with an IQ of less than 70. This is more pronounced in the remand male prison population who commonly exhibit slightly lower IQs (90–109) than average.²⁴

One UK study showed that 20% of the prison population had a 'hidden' disability while 20 to 50% of male prisoners had a specific disability.²³ This is much higher than the estimated figures for the general population of between 1 and 2%.²⁵

HEALTH-RELATED BEHAVIOUR IN THE UK PRISON POPULATION

Prisoners are not only less likely than the general population to use preventive health services (such as screening, immunisation and health advice), they are also more likely to practice health-damaging behaviours such as smoking, drinking and recreational drug use.^{26,27} Moreover, this particular group is more likely to commit crime as a consequence of substance misuse or resultant mental ill-health.²⁷ Some studies have shown that even when prisoners were offered an opportunity to exercise and adopt good dietary regimes, they did not necessarily opt for them.⁹ However, a study showed that if prisoners with type 2 diabetes adhered to healthy eating and exercise regimes during imprisonment their overall metabolic control of diabetes improved during their imprisonment.²⁸

Although prison establishments can offer opportunities for prisoners to make healthy choices (smoking cessation, healthier eating), service uptake can vary.¹⁰

Tobacco use

In England, 21% of men are regular smokers.²⁹ The group most likely to smoke are young men aged 20 to 24 years (44%) and men from manual labour backgrounds (38%).³⁰ It has been reported that at least 80% of prisoners smoke.^{10,31} This figure is higher in people who are dependent on alcohol, drugs or have mental health problems.^{32,10} This is even higher among juvenile prisoners with 89% stating that they smoked before coming into prison.³³

Smoking leads to a variety of well-known health problems, addiction being one of them. Acheson³⁴ mentioned that a proportion of people who smoke will have other addictive tendencies, that is they are more inclined to also engage in regular alcohol and recreational drug use.

Alcohol use

Alcohol misuse is a serious problem among a subgroup of the UK population. According to the Alcohol Use Disorders Identification Test (AUDIT), hazardous alcohol use is defined 'as an established pattern of drinking which

Table 1 Classification of prison establishments, according to Flynn¹³

Prisoner age	Juveniles, young offenders
	Adults
Gender of prisoner	Male
	Female
	Mixed
Level of security (Category A, B, C and D)	Maximum
	High
	Medium
	Low
Level of organisation	Closed
	Open
	Training
Other	Local
	Remand centre
	Private

confers the risk of physical and/or psychological harm', while harmful use can be defined as 'the presence of physical or psychological complications'.³⁹

Per thousand in the male UK population, 119 men were reported to be alcohol 'dependent' in 2000.³⁶ This increases to two thirds of men and more than one third of women entering prisons.³² More than 60% of them mentioned that they drink alcohol on a daily or weekly basis, binge drink once a week (66%), and 25% of them admitted that their drinking was out of control before imprisonment.³²

According to Alcohol Concern, male prisoners (71% of remand prisoners and 59% of sentenced prisoners) who drinks hazardously have 2 or more mental health or behavioural disorders.³⁷ A proportion of people who committed suicide, misused alcohol and had contacted a mental health service within a year of their deaths.³⁸ The associated mental health problems with alcohol dependency are higher in vulnerable groups such as offenders, young people and homeless people. One in three men (32%) serving prison sentences revealed that they had been drinking four or more times a week in the year before their imprisonment.¹⁹ This was higher in Scottish prisoners where 41% of men were reported to have alcohol problems.³⁹

Substance misuse

In one study in England and Wales, 13% of men used illegal drugs.⁴⁰ A recent study of drug misuse in England and Wales (2010/11) revealed that 8.8% of adults, aged 16–59, had used one or more illegal drug within the last year.⁴¹

Table 2 Common medical condition in males both in general and prison population

Medical condition	General population	Male general population	Males prisoners
Diabetes	9.8% ⁴⁸	5.6% men ⁴⁸	In England and Wales estimate 2 to 3% of male prisoners ⁸
Hypertension	Prevalence in UK 31% men and 28% woman ⁴⁸		6% estimated in England and Wales ⁸
Psychosis		1% ⁸	10 times higher in people in custody than aged matched people in community, ⁸ 4% in men ⁸
Depression	2.6% in 2000 ⁵⁴	2-4% ⁸ 2.3% men ⁵⁴	Major depression 10-12% ⁸
HIV/Aids	1.5 per 1000 of the UK population in 2010 ⁴⁵	1.9 per 1000 ⁴³	Last study in England and Wales in 1997-1998: 0.3% among men and 1% among women ⁴⁶
Asthma		4.2% self-reported to have asthma ⁴⁷	In England and Wales it is an estimate of 10% ⁸
Musculoskeletal	141,000 (self-reported illness caused or made worst by work in GB) ⁵⁵		In England and Wales 17% ⁸

This figure is higher in the English prison population where 75% of prisoners have reported the use of illicit drugs.¹⁴ This figure has slightly dropped in 2012, where 69% of adult prisoners have reported a use of at least one drug in the year before imprisonment.³² The majority of them (71%) reported Class A drugs as their main drugs of choice.³⁸ In a cross sectional survey of all prisons in England and Wales (2002), the rate of heroin use was 40 times greater compared to the general population and more than 70% of the study population also reported smoking cannabis.⁴² Studies have shown that an average of 60,000 people yearly enter prison with a diagnosable drug or alcohol dependence.³²

Drug use can have a profound impact on psychological well-being and general health from either illegal use within prison or acute withdrawal following imprisonment. Other effects of drug dependency are general instability, insomnia, cravings (often for sugar and sweet foods), and social maladjustment. Instability can impact upon physical and mental health. In the UK, 2.6% of the general population aged between 16 and 59 years had taken a Class A drug in 2012/2013. Of those that were drug dependant 12% suffered from a neurotic disorder and 5% had a personality disorder. As drug use in the prison population is higher so mental health problems will consequently to be more prevalent.³ It has been noted that the suicide rate is higher in prisoners (especially in remand prisoners).³⁸ Therefore, the prison environment can be considered a high risk environment for suicide.

PRISONERS' HEALTH

Table 2 summarises the most common chronic health conditions in the United Kingdom and their incidence both in

prisoners and the general population where such figures could be found. There was a higher prevalence of all conditions among male prisoners in comparison to males in the general population with the exception of diabetes and hypertension (probably due to younger cohorts in prison groups). General health in prison may be further compromised by low levels of physical activity, starting and/or increasing habits such as cigarette smoking and/or intake of sugary foods to combat stress and boredom.

Blood-borne viruses

The rates of communicable disease in prison are also higher than the general population.³² One of the reasons could be increased numbers of drug users within this population. Communicable diseases such as Hepatitis B, Hepatitis C and HIV are more prevalent in people who abuse drugs. The Health Protection Agency (2008)⁴¹ reported that in the UK as high as one in six (15%) intravenous drug users has had Hepatitis B. In 2012, it was reported that 8% of males and 12% of female prisoners are Hepatitis B positive while there were 9% of males and 11% of females tested positive for Hepatitis C.³² Among Irish prisoners, 8.7%⁴³ had antibodies to Hepatitis B core antigen, 37% to the Hepatitis C virus and 2% with HIV. Figures for Hepatitis B and C are higher in USA prisoners. They have presented with 0.9 to 11.4% Hepatitis B surface antigen, 6.5 to 42.6% Hepatitis B virus core antibody and a prevalence of 23% to 34% Hepatitis C virus.⁸ This is in contrast to the normal population in the UK with the rate of Hepatitis C being less than 1%. The rate of Hepatitis C is very high in prison establishments. According to Skipper *et al.*⁴⁴ 30% of prisoners who accepted an HCV test were positive.

There were an estimated 83,000 adults living with HIV in the UK at the end of 2008.⁴¹ Public Health Data relate to England, Wales and Northern Ireland in 2013, showed that the people who have been diagnosed with HIV had risen to 131,327 (90,976 men).⁴⁵ However, the level of HIV infection related to injecting drug use was only 2.5% of all new HIV diagnoses in the UK in 2010.⁴⁶ However, this increased to level of 4.4% in 2013.⁴⁵ Prevalence of sexually transmitted diseases including genital chlamydia trachomatis is common and HIV/aids in prisoners can be 20 times greater than the general population. The Department of Health identified that prisoners are in need of targeted sexual health information. Stigma attached to these infections, in particular HIV, is high and people diagnosed might be discriminated against.⁴⁶

Morbidity and mortality in HIV can depend on factors such as medication compliance, smoking, alcohol intake, drug use and co-morbidities.⁴⁶ Some of the above mentioned infections can be prevented by giving health education about the routes of transmission targeted towards sections of the prison population at most risk (such as sex workers, people who use illegal drugs, etc).¹⁴

Tuberculosis

Tuberculosis has an international dimension and poses a threat to the general population due to high mortality and drug resistance.³ In 2003, there was an estimated 32,000 prisoners with tuberculosis in prisons in Europe.¹⁴ Cases of active pulmonary tuberculosis can spread by airborne particles and risks increase in prison populations, when overcrowding and poor ventilation exist.⁸ Prisoners also present with a high prevalence of other risk factors for tuberculosis such as HIV infection, history of IV drug use, malnutrition, inability to access healthcare⁸ and close proximity living conditions.

It has also been estimated that mortality rate for chronic obstructive pulmonary diseases (around 14 times) and tuberculosis (9 times) is higher in people who have been employed in unskilled manual occupations compared to men employed in professional roles.⁴⁷ Majority of male prisoners (20 to 64 years old) either have been unemployed or were in manual occupations.

Mental health

There is a high prevalence of mental health problems in the prison population. One in seven prisoners have a treatable mental condition.⁸ The commonest mental health problem is personality disorder (40 to 70%) followed by alcohol and substance misuse or dependence (17-30% of men), depression

(10–12%), and post-traumatic stress disorder (up to 20%).⁸

In the UK the following has been reported:

- Among those who had a clinical interview, the prevalence of any personality disorder was 78% for male remand prisoners and 64% for male sentenced prisoners¹⁹
- Seven percent of males sentenced, and 10% of males on remand have a functional psychosis (for example, schizophrenic or delusional disorder)¹⁹
- Fifty-nine percent of remand and 40% of sentenced male prisoners in the sample had a neurotic disorder (for example, depressive episodes, phobias).¹⁹

The World Health Organisation (WHO)¹⁴ reported that 6–12% of all prisoners need to be transferred to specialised institutions/units and 40–60% would benefit from mental health promotion services.¹¹ Prisoners' mental health can also be affected directly by the prison environment. Factors such as bullying, boredom, the stress of imprisonment and overcrowding, can impact upon mental health.

Meltzer *et al.* (1999)²¹ found that most prisoners self-reported their health as 'good' or 'fairly good' (remand prisoners 87% and convicted prisoners 93%). However, a significant proportion reported depression or anxiety (remand prisoners 17% and convicted prisoners 8%) and a third of prisoners have been shown to take long-term prescribed medication for anxiety and/or depression.³⁸ WHO reported that 89% of the prison population has depressive symptoms.¹⁴

Chronic disease

Respiratory conditions, particularly asthma, are more common in young prisoners.⁹ Stress-related somatic symptoms in prisoners are estimated to be 74%.¹⁴

Diabetes mellitus

The prevalence of diabetes mellitus, particularly type 2, is rising in younger men.⁴⁸ This carries significant risks as men with type 2 diabetes will have a fourfold higher risk of suffering from coronary heart disease. The risk factors are increased age, alcohol consumption over the recommended daily limits, being obese and having raised waist circumference.⁴⁹ Two to three percent of male prisoners were diagnosed with diabetes.⁹

Overweight and obesity

In 2012, in England, more than a quarter of all adults were obese compared to 24% in 2006.⁴⁸ An increased risk of obesity was seen in men between the ages of 55 to 64, who had an increased waist circumference, were

less physically active, consumed alcohol, had limited intake of fruit and vegetable, and had a higher index of multiple deprivation (IMD).⁴⁸ These factors are commonly seen in prisoners.

The consequences of obesity are reduced overall quality of life, and increased prevalence of hypertension, type 2 diabetes and premature death.

Hypertension

It is difficult to estimate rates of hypertension. However, it is estimated to be 40% in the UK population, with a third of people receiving treatment and a third of those controlled.⁵⁰ In the Health Survey in England in 2006,⁴⁸ 55% of the people reported doctor diagnosed hypertension; 42% of them were on treatment.

In the US, Wilper *et al.*² noted that hypertension rates were higher in all types of prisoner (federal inmate [29.5%], state inmate [30.8%] and jail inmate [27.9%]) compared to the US non-prisoner population (25.6%). No data as we are aware exists for the UK prison population.

Cardiovascular disease (CVD)

It is estimated that 3.6% of English men are diagnosed with cardiovascular disease (CVD).⁴⁸ CVD is the biggest killer in the UK. Although, its prevalence has decreased due to lower smoking rates, 32% of deaths are caused by CVD.^{50,51} Smokers have a higher coronary heart disease mortality rate (between 60% and 80%) and we have shown that prisoners have extremely high rates of smoking. In the UK, there are 1.6 million men with CVD and 1.2 million men with angina.⁵¹

Other contributing factors to CVD are depression, old age, higher BMI and increased waist circumference. As prisoners are commonly smokers, suffer from depression, and have poor dietary and exercise lifestyle, it is not surprising that CVD is the leading cause of death in them.⁵³

The mortality rate has also a positive relationship with levels of deprivation. Men from lower income households have higher rates of CVD than those in the highest.⁴⁸

CONCLUSION

The prison population is relatively young; however, their health status is worse than the general population than would be expected for their age. Factors such as smoking, abuse of alcohol or drugs, mental health and medical comorbidities contribute to this poor health status. Service uptake can be low and untreated conditions commonly seen, therefore, prisoners' health needs might have not been met, or only partially met.³⁹ This must

be taken into consideration when planning and commissioning services for this vulnerable group.

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