Profiling Mentally Ill Offenders in Hong Kong: a 5-year Retrospective Review Study

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Abstract

Objectives: This study aimed to determine the prevalence of mental illness in offenders referred to psychiatrists from January 2011 to March 2016 and any associations between crime and mental illness in these offenders.

Methods: Case notes of offenders referred to psychiatrists at the Siu Lam Psychiatric Centre from 1 January 2011 to 31 March 2016 were reviewed. Data on sex, age on admission, educational level, principal psychiatric diagnosis, index offence, source and reason of referral, and outcome were collected.

Results: Case notes were reviewed for 4492 offenders (75% males) aged 14 to 93 (mean, 40.6) years. Of these, 68% were referred by the courts for psychiatric report and 32% were referred by correctional institutions for psychiatric assessment and treatment. Approximately 73% of them had a diagnosable mental disorder. The most common principal psychiatric diagnoses were schizophrenia and related disorders (25%), mental and behavioural disorders due to psychoactive substance use (20%), and mood disorders (9%). The most common index offences were theft and related offences (22%), acts intended to cause injury (20%), and illicit drug offences (11%). Offences involving violence were more prevalent in males than in females ($p < 0.001$). In terms of the three most common principal psychiatric diagnoses, 'acts intended to cause injury' was most prevalent in those with 'schizophrenia and other related disorders' than in those with the other two diagnoses (31% vs 19% vs 17%, $p < 0.001$). 'Theft and related offences' was most prevalent in those with mood disorders than in those with other two diagnoses (38% vs 20% vs 18%, $p < 0.001$). 'Illicit drug offences' was most prevalent in those with 'mental and behavioural disorders due to psychoactive substance' than those with other two diagnoses (22% vs 8% vs 6%, $p < 0.001$).

Conclusions: The prevalence of mental disorders among offenders referred to psychiatrists is high. The pattern of associations between crime and mental disorders in these offenders is comparable with that reported in overseas studies. As Siu Lam Psychiatric Centre is the only facility in Hong Kong for mentally ill offenders, our sample is representative, and our results provide cross-sectional pattern of forensic psychiatric service utilisation in Hong Kong.

Key words: *Epidemiology; Forensic psychiatry; Hong Kong; Mentally ill persons*

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Introduction

Prevalence of mental illness in incarcerated population

Forensic psychiatry involves assessment and treatment of people with mental disorders who come into the legal system.[1-3] In the incarcerated population, psychiatric morbidity has been reported to be high in both remanded (63% of males and 76% of females) and sentenced (37% of males and 57% of females) prisoners.[4-7] The estimated prevalence of severe mental illness in the incarcerated population has been reported to be 9% to 20%, compared with 6% in the general population.[8-11] The increased prevalence is likely

to be related to deinstitutionalisation, limited community resources, prominent court decisions and legislative rulings, and the 'revolving door' phenomenon.[12,13] In a systematic review of 62 studies that included 23,000 prisoners from 12 countries, the prevalence of psychosis, major depression, and antisocial personality disorder was found to be several times higher in prisoners than in the general population.[14]

Relationship between crime and mental illness

The high prevalence of mental illness in remanded and sentenced populations could reflect the association between crime and mental illness (schizophrenia, personality disorder, depression, substance misuse, intellectual disability, and dementia). Patients with schizophrenia have been reported to be more likely to commit violent offences, although evidence on the association between schizophrenia and crime is conflicting.[15] In a study in Sweden, the rate of violent offences was four times higher in schizophrenia patients, although the overall crime rate of male schizophrenia patients was similar to that of the general population.[16] There is a strong association between acute psychotic symptoms and violence, and psychotic symptoms account for most of the very violent behaviour.[17,18] In the Dunedin birth cohort, the violence rate among those with schizophrenia-spectrum disorders increases five-fold (in those with criminal convictions) to seven-fold (self-reported).[19]

In the United Kingdom, up to 78% of prisoners have a personality disorder, with antisocial personality disorder being the most common, followed by paranoid (in men) and borderline personality disorders (in women).[20] In a systematic review of 62 studies about mental disorder in prisons, 65% of male prisoners had a personality disorder and 47% had a dissocial personality disorder.[14]

The typology of depressed shoplifters includes isolated young adults under stress and older people with chronic depression, depression associated with acute loss, and personality disorder with an aggressive swing.[21,22] Similarly, shoplifting in middle-aged women is associated with depression and anxiety symptoms, particularly if shoplifting is the sole conviction.[22]

Substance misuse, combined with mental illness or personality disorder, is common among forensic psychiatric patients.[20] Alcohol and drugs may be associated with criminal behaviour because intoxication can impair judgement and reduce inhibition. In withdrawal states, agitation and psychotic symptoms, such as paranoia, can predispose one to violent behaviour. Additionally, various forms of theft are committed to purchase illicit substances. Substance misuse is more prevalent in individuals with personality disorder, and alcohol misuse is associated with increased violence in people with antisocial personality disorder.[23]

A meta-analysis of sex offenders reported strong association between low intelligence and paedophilic sex offences, but not for other types of sex offences.[24] A case series reported that 11% of those charged with arson had learning disability.[25] In a retrospective review of 2397 patients in memory and ageing centre, the common manifestations of criminal behaviour in patients with frontotemporal dementia were theft, traffic violations, sexual advances, trespassing, and public urination, whereas patients with Alzheimer dementia commonly committed traffic violations.[26]

Forensic psychiatric services

Prisons are left to deal with inmates whose behaviour does not reach admission criteria to psychiatric services despite 'being marked enough to interfere with discipline and communication'.[27,28] The provision of forensic psychiatric services varies considerably among countries and is governed by different mental health laws.[1,29-31] In United Kingdom, forensic psychiatric services are delivered through high-security psychiatric hospitals, medium-security psychiatric units, low-security psychiatric units, community forensic mental health teams, and independent private secure psychiatric facilities, whereas admission and transfer are governed by the Mental Health Act.[32]

In Hong Kong, admission and transfer to psychiatric units are governed by the Mental Health Ordinance.[33] Hong Kong has no high-security psychiatric hospital. Psychiatric criminals are taken to the Siu Lam Psychiatric Centre (SLPC) of the Correctional Services Department and cared for by outreach services provided by the Forensic Psychiatric Department of Castle Peak Hospital. The SLPC is the only facility of its kind in Hong Kong. It receives mentally ill offenders sentenced by the courts for compulsory psychiatric inpatient treatment, as well as remanded and sentenced individuals who require psychiatric assessment and treatment referred by courts and correctional institutions. In recent years, the number of new cases seen at the SLPC by visiting psychiatrists has been approximately 1100 to 1300 per year.

Objectives

This study aimed to determine the prevalence of mental illness in offenders referred to psychiatrists at the SLPC from January 2011 to March 2016 and any associations between crime and mental illness in these offenders.

Methods

This retrospective review study was approved by the Research and Ethics Committee of the New Territories West Cluster of the Hospital Authority and the Research and Ethics Committee of the Correctional Services Department.

Case notes at the SLPC from 1 January 2011 to 31 March 2016 were reviewed. Data on sex, age on admission, educational level, principal psychiatric diagnosis, index offence, source and reason of referral, and outcome were collected. For offenders with multiple admissions, only data from the latest admission were used. Psychiatric diagnosis was made within 2 weeks. Each case was discussed in the weekly clinical case round chaired by senior psychiatrists and a consensus was reached on the principal diagnosis

(if any) based on the 10th revision of the International Classification of Diseases.[34] The index offences were classified into 16 categories using the Australian and New Zealand Standard Offence Classification.[35]

Two-sample *t* test was used to compare the age between sex groups. Pearson's Chi square test was used to determine any difference in the distribution of principal diagnosis, index offence, and reason for referral between sex groups. Cramer's V was computed to assess the strength of association. If the distribution of a variable differed significantly between sex groups, the same test was repeated for sub-items. Statistical analysis was conducted using the SPSS (version 12.0; IBM Corp, Armonk [NY], US). An alpha value of <0.01 was considered statistically significant.

Results

Case notes of 4492 offenders (75% males) aged 14 to 93 (mean, 40.6; standard deviation, 13.2) years were reviewed. Male offenders were younger than female offenders (40.0 ± 13.3 years vs 42.2 ± 12.8 years, p = 0.001, Table 1). Among males, the proportion of the age group of 18 to 39 years was larger than that of the age group of 40 to 64 years (50% vs 42%), but the distribution was reversed among females (43% vs 51%). Most (54%) offenders had secondary-level education.

The distribution of principal diagnosis differed significantly between sexes (p < 0.001, Table 2), with a moderate association between principal diagnosis and sex (r = 0.210). Of all cases, 73% had a diagnosable mental disorder (70% in males and 79% in females). The most common diagnosis was 'schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders' (25%), followed by 'mental and behavioural disorders due to psychoactive substance use' (22% in males vs 16% in females, p < 0.001), especially for alcohol-related disorders (4% vs <0.5%, p < 0.001). Heroin was the most commonly used substance. 'Mood (affective) disorder' was more prevalent in females than males (19% vs 7%, p < 0.001), as was 'anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders' (9% vs 5%, p < 0.001). Dissocial personality disorder and paraphilic disorders, such as exhibitionistic disorder and fetishism, were more prevalent in males, whereas borderline personality disorder was more prevalent in females. The prevalence of 'intellectual disabilities', 'pervasive and specific developmental disorders', 'behavioural and emotional disorders with onset usually occurring in childhood and adolescence', and 'behavioural syndromes associated with physiological disturbances and physical factors' was higher in males than in females (p < 0.05). 'Behavioural syndromes associated with physiological disturbances and physical factors' was the least prevalent diagnosis, which was more common in females than in males (p < 0.05).

The distribution of the index offence differed significantly between sexes (p < 0.001, Table 3), with a strong association between index offence and sex (r = 0.342). 'Theft and related offences' was the most prevalent (39% in females vs 16% in males, p < 0.001), followed by 'acts intended to cause injury' (16% vs 22%, p < 0.001) and 'illicit drug offences' (15% vs 10%, p < 0.001). Offences involving violence, such as 'sexual assault and related offences', 'property damage and environmental pollution', and 'public order offences', were more prevalent in males than females (p < 0.001).

The three most common principal psychiatric diagnoses were moderately associated with 'acts intended to cause injury', 'theft and related offences', 'illicit drug offences', 'property damage and environmental pollution', 'fraud, deception, and related offences', and 'sexual assault and related offences' (r = 0.257, p < 0.001, Table 4). 'Acts intended to cause injury' was most prevalent in those with 'schizophrenia and other related disorders' than in those with other two diagnoses (31% vs 19% vs 17%, p < 0.001).

Table 1. Age and education level of offenders in Siu Lam Psychiatric Centre.

Parameter	Total (n = 4492)*	Males (n = 3346)*	Females (n = 1146)*	p Value
Age at admission, y	40.6 ± 13.2	40.0 ± 13.3	42.2 ± 12.8	0.001
<18	78 (2)	66 (2)	12 (1)	
18-39	2161 (48)	1671 (50)	490 (43)	
40-64	1997 (44)	1417 (42)	580 (51)	
≥65	195 (4)	146 (4)	49 (4)	
Unknown	61 (1)	46 (1)	15 (1)	
Education				0.105
No formal education	101 (2)	66 (2)	35 (3)	
Primary	1052 (23)	797 (24)	255 (22)	
Secondary	2411 (54)	1790 (53)	621 (54)	
Tertiary	423 (9)	306 (9)	117 (10)	
Unknown	505 (11)	387 (12)	118 (10)	

* *Data are presented as No. (%) of offenders unless otherwise stated*

Table 2. Distribution by principal psychiatric diagnosis.

Principal psychiatric diagnosis	No. (%) of offenders			p Value
	Total (n = 4492)	Males (n = 3346)	Females (n = 1146)	
Mental disorders due to known physiological conditions	113 (3)	84 (3)	29 (3)	0.969
Mental and behavioural disorders due to psychoactive substance use				<0.001
Alcohol-related disorders	154 (3)	149 (4)	5 (<0.5)	
Opioid-related disorders	69 (2)	54 (2)	15 (1)	
Multiple drug use and use of other psychoactive substance–related disorders	543 (12)	417 (12)	126 (11)	
Others	151 (3)	113 (3)	38 (3)	
Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders				0.464
Paranoid schizophrenia	216 (5)	166 (5)	50 (4)	
Schizophrenia, unspecified	594 (13)	464 (14)	130 (12)	
Delusional disorder	76 (2)	44 (1)	32 (3)	
Unspecified nonorganic psychosis	145 (3)	100 (3)	45 (4)	
Others	103 (2)	80 (2)	23 (2)	
Mood (affective disorders)				<0.001
Bipolar affective disorder, unspecified	94 (2)	67 (2)	27 (2)	
Depressive episode, unspecified	157 (3)	81 (2)	76 (7)	
Dysthymia	53 (1)	17 (1)	36 (3)	
Others	149 (3)	75 (2)	74 (6)	
Anxiety, dissociative, stress-related, somatoform and other non-psychotic mental disorders				<0.001
Adjustment disorders	162 (4)	92 (3)	70 (6)	
Others	96 (2)	64 (2)	32 (3)	
Behavioural syndromes associated with physiological disturbances and physical factors	15 (<0.5)	6 (<0.5)	9 (1)	0.002
Disorders of adult personality and behaviour				0.183
Dissocial personality disorder	60 (1)	56 (2)	4 (<0.5)	
Others	118 (3)	69 (2)	49 (4)	
Intellectual disabilities	124 (3)	103 (3)	21 (2)	<0.05
Pervasive and specific developmental disorders	23 (1)	23 (1)	0 (0)	<0.01
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence	42 (1)	37 (1)	5 (<0.5)	<0.05
Not mentally ill	1037 (23)	826 (25)	211 (18)	<0.001
Pending diagnosis / unspecified / unknown	198 (4)	159 (5)	39 (3)	0.055

'Theft and related offences' was most prevalent in those with mood disorders than in those with other two diagnoses (38% vs 20% vs 18%, $p < 0.001$). 'Illicit drug offences' was most prevalent in those with 'mental and behavioural disorders due to psychoactive substance' than those with other two diagnoses (22% vs 8% vs 6%, $p < 0.001$).

Of the 4492 offenders, 1446 (32%) were referred by correctional institutions for psychiatric assessment and treatment, most commonly for 'depressed mood' (15%) and 'psychotic symptoms' (16%), whereas 3046 (68%) were referred by the courts for psychiatric report: 2763 (91%) by the Magistrates' Courts, 214 (7%) by the District Court, and 67 (2%) by the High Court. The distribution of principal diagnosis differed significantly between the two types of referral ($p < 0.001$), with a strong association between principal diagnosis and type of referral ($r < 0.332$). Those referred by correctional institutions had a higher proportion of 'disorders related to substance abuse and dependence'. 'Self-harm' and 'suicidal tendency' were more common in males (27%), younger age groups (25%), and illicit drug

Table 3. Distribution by index offence.

Index offence	No. (%) of offenders			p Value
	Total (n = 4492)	Males (n = 3346)	Females (n = 1146)	
Theft and related offences	969 (22)	525 (16)	444 (39)	<0.001
Acts intended to cause injury	919 (20)	736 (22)	183 (16)	<0.001
Illicit drug offences	508 (11)	335 (10)	173 (15)	<0.001
Sexual assault and related offences	377 (8)	371 (11)	6 (1)	<0.001
Property damage and environmental pollution	297 (7)	251 (8)	46 (4)	<0.001
Fraud, deception, and related offences	255 (6)	185 (6)	70 (6)	0.465
Public order offences	238 (5)	223 (7)	15 (1)	<0.001
Abduction, harassment, and other offences against a person	185 (4)	148 (4)	37 (3)	0.079
Prohibited and regulated weapons, and explosives offences	181 (4)	149 (4)	32 (3)	0.014
Offences against justice procedures, government security, and government operations	149 (3)	104 (3)	45 (4)	0.182
Robbery, extortion, and related offences	88 (2)	81 (2)	7 (1)	<0.001
Unlawful entry with intent/burglary, breaking and entering	88 (2)	79 (2)	9 (1)	0.001
Homicide and related offences	80 (2)	67 (2)	13 (1)	0.055
Dangerous or negligent acts endangering people	59 (1)	38 (1)	21 (2)	0.074
Miscellaneous offences	39 (1)	30 (1)	9 (1)	0.726
Traffic and vehicle regulatory offences	18 (<0.5)	15 (<0.5)	3 (<0.5)	0.388
Unknown	42 (1)	9 (<0.5)	33 (3)	<0.001

offenders (30%), whereas 'unstable emotion', 'aggressive behaviour', and 'bizarre behaviour' were more common in females ($p < 0.02$). About 48% of the offenders required no psychiatric follow-up, whereas 38% required psychiatric follow-up. Those referred by courts had a higher proportion of 'schizophrenia and related disorders'. The most common outcome of psychiatric report was 'ordinary sentence with psychiatric follow-up' (46%), followed by 'hospital order (compulsory psychiatric inpatient treatment)' (25%) and 'ordinary sentence without psychiatric follow-up' (25%).

Discussion

Offender characteristics

Of all people arrested in Hong Kong during 2011 to 2015, 72% of males and 28% of females were arrested for indictable offences, with a male-to-female ratio of 2.54 to 1.[36] For people aged <40 years, the percentage was 59% in males and 48% in females. In the United Kingdom in 2009, <20% of arrests were for females,[37] whereas in the United States in 2010, approximately 25% of arrests were for females.[38]

In Hong Kong during 2011 to 2016, the most common offences for which males were arrested were 'burglary and theft' (29%), 'violent and sexual offences' (28%), and 'serious drug offences' (8%).[39] For females, the most common offences were 'burglary and theft' (54%), 'violent and sexual offences' (14%), 'fraud and forgery' (9%), and 'serious drug offences' (6%).

The sex ratio for those at the SLPC was 2.91 to 1, which was higher than that in the arrested population. In females, the proportion of the age-group 40 to 64 years was higher than the younger age groups. This could be explained by the nature of SLPC, as only offenders with suspected mental health problems were referred to SLPC. The distribution of crimes by sex and age groups was confounded by the prevalence of mental illnesses in different sex and age groups, in different crimes, and in custodial populations, as well as differences in classification of offences.

Mental disorders among offenders

In the present study, 73% of offenders at SLPC (79% in males and 70% in females) had a diagnosable mental disorder, comparable to other studies.[4,6,7] Remanded prisoners have a higher risk of mental disorder because of multiple factors, such as adjustment issues in relation to incarceration and prison environment, stresses from ongoing court proceedings and uncertainties about the offence and potential sentence

Table 4. Distribution by three most common principal psychiatric diagnostic groups.

Index offence	No. (%) of offenders			p Value
	Mental and behavioural disorders due to psychoactive substance use (n = 917)	Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders (n = 1134)	Mood (affective disorders) [n = 453]	
Acts intended to cause injury	175 (19)	346 (31)	75 (17)	<0.001
Theft and related offences	185 (20)	209 (18)	170 (38)	<0.001
Illicit drug offences	205 (22)	71 (6)	36 (8)	<0.001
Property damage and environmental pollution	84 (9)	102 (9)	14 (3)	<0.001
Fraud, deception, and related offences	21 (2)	65 (6)	39 (9)	<0.001
Prohibited and regulated weapons, and explosives offences	55 (6)	48 (4)	15 (3)	0.051
Abduction, harassment, and other offences against a person	36 (4)	44 (4)	26 (6)	0.213
Public order offences	40 (4)	52 (5)	10 (2)	0.082
Sexual assault and related offences	10 (1)	72 (6)	17 (4)	<0.001
Offences against justice procedures, government security, and government operations	20 (2)	48 (4)	11 (2)	0.019
Robbery, extortion, and related offences	21 (2)	19 (2)	10 (2)	0.576
Unlawful entry with intent/burglary, breaking and entering	20 (2)	15 (1)	10 (2)	0.267
Dangerous or negligent acts endangering people	16 (2)	20 (2)	5 (1)	0.613
Homicide and related offences	7 (1)	12 (1)	6 (1)	0.594
Miscellaneous offences	7 (1)	4 (<0.5)	6 (1)	0.096
Traffic and vehicle regulatory offences	7 (1)	1 (<0.5)	3 (1)	0.052
Unknown	8 (1)	6 (1)	0 (0)	0.123

and consequences, withdrawal from drugs and alcohol, dependence, and drug-induced psychosis.

Schizophrenia and related psychotic disorders

'Acts intended to cause injury' was associated with schizophrenia and related psychotic disorders, although 'theft and related offences' was also prevalent in schizophrenia, consistent with other studies.[15-19] The proportion of homicides committed by people with psychosis is consistent across countries. Nevertheless, in our study, 12 (15%) of 80 of the 'homicide and related offences' were perpetrated by people with a schizophrenia-spectrum disorder, compared with 5% to 8% in Caucasian populations.[40] This could be explained by the low homicide rate in Hong Kong. In addition, not all people charged with homicide were psychiatrically assessed at SLPC.

Personality disorders

In our study, 3% of offenders had personality disorder; dissocial personality disorder was more prevalent in males, and borderline personality disorder was more prevalent in females, consistent with other studies.[14,20] The low prevalence of personality disorders may be due to the retrospective review nature without structured diagnostic interviews. Moreover, only the principal diagnosis was collected; personality disorder as a secondary diagnosis was not counted and thus underestimated. Whether people with different ethnicities would attract a diagnosis of personality disorder may be a potential source of bias, but no conclusion could be drawn owing to methodological variations.[41]

Substance use disorders

In our study, the prevalence of mental and behavioural

disorders due to psychoactive substance use was higher in males than females (22% vs 16%), particularly for alcohol-related disorders. Heroin was the most prevalent substance.[42] There is an association between heroin use and criminal behaviour.[43,44] In a review of aggressive behaviour in heroin users, aggression was more closely associated with personality factors.[45] In United Kingdom, over a third of male prisoners have used cannabis, and cannabis dependence was associated with violence in the Dunedin birth cohort.[46] Among offenders in SLPC, cannabis was not commonly used. In contrast, the number of methamphetamine abusers increased by 7% during 2013 to 2015. Methamphetamine use has been reported to be associated with violent crimes, although the causal relationship has not been established.[47]

Mood disorders

Acquisitive offending is associated with both mood disorders and female sex, consistent with other studies.[21,22] Associations between schizophrenia, bipolar disorder and depression, and self-reported violence are equally strong.[48] Approximately 7% of perpetrators of homicide have a lifetime diagnosis of mood disorder.[40] Homicide-suicide and infanticide have been reported to associate with depression.[49] Among offenders in SLPC, 7.5% (6 out of 80) of those indicted for homicide or related offences were diagnosed with a mood disorder.

Other diagnosis

In our study, compared with those without intellectual disability, those with intellectual disability were associated with sexual offences (25% vs 8%, $p < 0.01$), but the number of sexual offenders with intellectual disability was too small for subgroup analysis.[24,25] Similarly, those with intellectual disability were associated with arson (6.5% vs 1.9%, $p < 0.01$). In addition, those with dementia were associated with theft and related offences (46% vs 21%, $p < 0.01$), consistent with other study.[26] Nonetheless, the number of dementia cases was too small for subgroup analysis.

Referrals for psychiatric assessment

Suicide and non-fatal self-harm in prisoners was 500% higher than in a matched population in England and Wales.[6] Among offenders in SLPC, 25% were referred because of suicidal tendency and self-harm, with the referral rate higher in males. Remanded prisoners, especially young offenders, and those with a history of illicit drug offences are at higher risk of suicide tendency and self-harm. In the prison population of England and Wales, the male-to-female ratio of prison suicides was nearly 10 to 1, and half had at least one psychiatric diagnosis.[6] Among offenders in SLPC, the male-to-female ratio was about 5 to 1. Nearly 75% referred by courts had a psychiatric diagnosis, and 25% of them required compulsory inpatient treatment (hospital order).

Clinical implications

The high prevalence of mental illness in the remanded and sentenced populations in Hong Kong highlights the importance of forensic psychiatric services for detection, assessment, treatment, and rehabilitation to improve clinical outcomes and prevent relapses. Introduction of high-security psychiatric hospitals as a long-term measure is suggested. Intermediate measures include implementation of interventional programmes in collaboration with the Correctional Services Department for those with high risk of re-offending. Strategies for prison suicide risk assessment and prevention especially for young male illicit drug offences should be implemented, as should interventional programmes for prisoners with substance misuse (such as motivational interviewing programmes) and violence risk assessment and management. In addition, both physical health and social problems affect mentally ill offenders' ability to cope with life in prison, pre- and post-release.

Limitations

One limitation of our study is that only the principal psychiatric diagnosis was collected. Multiple diagnoses were common, especially in the remanded populations. Approximately 25% of males and 33% of females on remand had two or more psychiatric diagnoses.[50] The number of offenders with psychiatric diagnosis might be underestimated, such as those with substance abuse dependence and personality disorder. Of the 4492 offenders in SLPC, 10% of data were missing and may have affected the real distribution of the variables. Longitudinal studies using structured clinical diagnostic interviews are warranted to further explore the association between mental illness and crime. Additional variables (eg, ethnicity and the number of previous offences) should have been collected to determine an association of cultural and behavioural factors with mental illness or crime.

Conclusions

The prevalence of mental disorders among offenders referred to psychiatrists is high. The pattern of associations between crime and mental disorders in these offenders is comparable with that reported in overseas studies. As Siu Lam Psychiatric Centre is the only facility in Hong Kong for mentally ill offenders, our sample is representative, and our results provide cross-sectional pattern of forensic psychiatric service utilisation in Hong Kong.

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Declaration

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