The Post-Release Experience of Prisoners in Queensland

Funded by Criminology Research Council (CRC) grant 27/03-04

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March 2006

ACKNOWLEDGEMENTS

The author wishes to gratefully acknowledge the following agencies and individuals for their support and assistance during this project:

- The Criminology Research Council, for providing the funding for this research;
- Queensland Government Department of Corrective Services, for providing access to participants, assisting with recruitment and providing recidivism data;
- Staff at the correctional centres where recruitment took place:
    - Woodford Correctional Centre
    - Brisbane Women's Correctional Centre
    - Numinbah Correctional Centre
    - Helena Jones Correctional Centre
    - Sir David Longland Correctional Centre;
- Ms Shelley Cogger, for assistiance with project management responsibilities, data collection and entry;
- Ms Belinda Lloyd for assistance with data analysis;
- The interview team:
    - Shelley Cogger
    - Maree Murfet
    - Justine Campbell
    - Jodie Walton
    - Craig Carmichael
    - Kevin Folkes.

Most importantly, we would like to offer our sincere thanks to the participants who gave of their time and shared their experiences with us, during a difficult and stressful time in their lives.

ABBREVIATIONS

AIC	Australian Institute of Criminology
AUDIT	Alcohol Use Disorders Identification Test
BBV	Blood-borne virus
CNS	Central Nervous System
CPGI	Canadian Problem Gambling Index
CRC	Criminology Research Council
DCS	Department of Corrective Services (Queensland Government)
HCV	Hepatitis C virus
HIV	Human Immunodeficiency Virus
IDU	Injecting Drug User
K10	Kessler Psychological Distress Scale
PREP-Q	Post-Release Experience of Prisoners in Queensland
SF-8	Self-Reported (Physical and Mental) Health Functioning Measure

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INTRODUCTION

Over the past 10 years Australia's prison population has grown by 45%, with 25,353 prisoners held in secure custody at June 30 2005. At the last census 19% of prisoners were serving sentences of less than 12 months and 39% were serving sentences of less than two years; over a third were incarcerated for non-violent property or drug-related offences (ABS, 2005b). There are currently no reliable data on the number of prisoners released from secure custody each year, however given the high proportion of prisoners serving short sentences, 44,000 releases per year may be a reasonable estimate (Baldry, McConnell, Maplestone, & Peeters, 2003).

The majority of released prisoners will return to custody at some point in their lives (ABS, 2003); in fact many ex-prisoners re-offend within a relatively short period of time. A recent review of government services by the Productivity Commission (SCRGSP, 2004) found that across Australia, 32% of prisoners released in 2000/01 returned to custody within two years, with another 17% having a non-custodial order imposed during that time. In the UK, a Home Office study found that among prisoners released in 1997, 58% had re-offended within two years. The authors of the report estimated that released prisoners account for 18% of recorded crime, and identified a number of key factors thought to influence re-offending including social disadvantage, drug and alcohol misuse, and mental and physical health (Social Exclusion Unit, 2002).

Prisoners released to the community are distinguished by their extreme social disadvantage. For example, a recent Australian longitudinal study of 238 ex-prisoners found that at least 21% were homeless post-release, that 84% were unemployed, and that over 50% reported having outstanding debts. Each of these factors significantly predicted re-incarceration (Baldry et al., 2003). Baldry and colleagues also noted that with increasing time outside of prison, more ex-prisoners rated their drug use as a problem; severity of drug problem (particularly heroin use) was also a significant predictor of re-incarceration. This latter finding is significant given that homelessness seems to exacerbate problematic drug use (Bessant et al., 2003).

Problematic drug use has long been recognised as a factor influencing re-offending. For example, in a meta-analysis of 131 studies conducted between 1970 and 1994 Gendreau, Little & Goggin (1996) identified substance abuse as a reliable dynamic predictor of re-offending. More recently Bonta, Law and Hanson (1998) meta-analysed 64 studies and identified use of illicit drugs as a predictor of both general and violent recidivism. Finally, in a meta-analysis of 45 studies, Dowden and Brown (2002) found that while drug and/or alcohol problems predicted recidivism, convictions for substance-related offences did not.

While the links between problematic drug use and crime are therefore well established, relatively little is known about the *prevalence* of illicit drug use among prisoners prior to and during incarceration, and even less is known about patterns of use post-release. Nevertheless, available evidence points to high rates of substance use at each time period. For example, a recent Scottish study of prisoners who had taken part in a drug treatment program found that 87% had injected drugs prior to incarceration, and that 47% had injected drugs in prison (Shewan, Reid, Macpherson, Davies, & Greenwood, 2001). A more recent study of Scottish female ex-prisoners reported that 48% were known drug users prior to their incarceration (Shewan, Hammersley, Oliver, & Macpherson, 2000). According to a recent UK Home Office report the *majority* of prisoners have a history of drug or alcohol misuse, and these prisoners are less likely to obtain employment on release (Social Exclusion Unit, 2002).

In Australia, available data paint a similar picture. For example the IDRS, an annual Australia-wide survey of injecting drug users (IDU) in the community, typically reports that just under half of IDU have a history of incarceration (e.g., Kinner & Fischer, 2005; Stafford et al., 2005). Similarly in the DUMA study, a regular survey of police detainees in various Australian

jurisdictions, 46% of interviewed detainees admitted to using illicit drugs prior to their arrest, while among those who had been arrested or incarcerated in the last 12 months, 49% and 60% respectively tested positive by urinalysis for opiates, amphetamines or cocaine (Makkai & McGregor, 2003). Consistent with this high rate of overlap between drug using and offending populations, the Victorian Alcohol and Drug Association asserts that 60% of prisoners are incarcerated for drug-related crime (VAADA, 2002).

More direct evidence of the high incidence of illicit drug use among Australian prisoners comes from the 2001 NSW Inmate Health Survey (Butler & Milner, 2003), which found that 80% of male and 84% of female prisoners had a history of drug use; that 53% of males and 73% of females had a history of injecting drug use; and that 24% of males and 43% of females admitted to injecting drug use in prison. According to a Queensland Government Department of Corrective Services (DCS) report, among both males and females received into remand and reception centres in October 1999, over 50% reported a history of illicit drug use and over a third reported a history of injecting drug use (DCS, 2000). The 2002 QLD Women Prisoners Health Survey found that 56% of women prisoners had a history of injecting drug use, and that 29% had injected in prison at some time. One promising project recently completed in Australia is the AIC's Drug Use Careers of Offenders (DUCO) project, which has shed some light on prior patterns of drug use among prisoners, and explored the nature of the link between drug use and crime (Johnson, 2004; Makkai & Payne, 2003). However, as DUCO is retrospective in nature, it has provided only limited information on patterns of drug use *after* incarceration.

Prisoners therefore seem to be characterised by high rates of drug use both prior to and during incarceration, however remarkably little is known about the post-release behaviour of prisoners, particularly in relation to illicit drug use. This is of particular concern not only in relation to recidivism, but also in light of the growing body of evidence that recently released prisoners are at considerably elevated risk of heroin overdose in the weeks after release. For example, Bird and Hutchinson (2003) found that among males aged 15-35 released from a Scottish prison between 1996 and 1999, drug-related mortality was seven times higher in the first two weeks after release than at any other time in the community. Seaman, Brettle and Gore (1998) found that among HIV-infected male injecting drug users who had recently been released from a Scottish prison, the risk of fatal overdose was eight times higher in the first two weeks after release than in the following ten weeks. Another recent Scottish study (Shewan et al., 2000) followed up female prisoners released from prison during 1994-95, and estimated that between a quarter and a third of female drug fatalities in the region were among women who had been incarcerated in the previous year. Finally, a retrospective analysis of all drug-related deaths in Glasgow in 1999 found that almost a quarter of deaths (23%) occurred within two weeks of release from prison (Jones et al., 2002).

Much of the research investigating overdose among ex-prisoners has been restricted to Scotland, however recent Australian data also indicate that ex-prisoners have an elevated risk of mortality in the months after release. In South Australia, McGregor and colleagues (2002) investigated all substance-related deaths between 1994 and 1997. They found that of 101 deaths, 13 of the deceased had been released from prison in the past four weeks. In New South Wales Darke and colleagues (2000) analysed the coronial files of all heroin-related fatalities between 1992 and 1996 and found that five percent of deaths occurred shortly after release from prison, with almost a third of these occurring in the first 24 hours. In Western Australia, Stewart and colleagues (Stewart, Henderson, Hobbs, Ridout, & Knuiman, 2004) compared the mortality rates of prisoners released between 1994 and 1999 with matched peers in the community and found that the risk of death was markedly elevated, particularly in the first six months post-release. The main causes of excess death in this group were related to alcohol and other drugs (Stewart et al., 2004). Finally in Victoria, Graham (2003) investigated all unnatural deaths among persons released from prison between 1990 and 1999. The rate of unnatural death was 10 times higher than that observed in the general population and over half of these deaths were heroin related. Graham

found that risk of death was greatest in the weeks immediately following release, with recently released prisoners accounting for at least 25% of heroin overdose deaths in Victoria.

Perhaps not surprisingly, it appears that ex-prisoners are also at elevated risk of non-fatal overdose: In a study of non-fatal overdose in San Francisco, Seal and colleagues (2001) identified having been arrested three or more times in the past year, and having been incarcerated for five or more years, as significant predictors of non-fatal overdose. Yet despite being considerably more common than fatal overdoses -- in Australia an estimated 31 times more common (Darke, Mattick, & Degenhardt, 2003) – and despite the fact that they are associated with considerable morbidity, particularly pressure injuries and pulmonary complications (Warner-Smith, Darke, & Day, 2002), non-fatal overdoses receive considerably less research attention (Clark & Bates, 2003). Among recently released prisoners one would expect a high rate of non-fatal overdose, and associated morbidity, yet virtually nothing is known about the rate of non-fatal overdose in this group.

Recently released ex-prisoners are at increased risk of both fatal and non-fatal overdose, however it remains unclear *why* these individuals are at such high risk. Conventional wisdom has implicated reduced tolerance as the major factor (ANCD, 2003b; Bird & Hutchinson, 2003; Strang et al., 2003), however some studies have offered contradictory evidence (e.g., Shewan et al., 2000). Darke and colleagues have observed that the very term overdose may be a misnomer: In the vast majority of cases tests reveal either normal or subnormal blood morphine concentrations in overdose victims (Darke, 2003; Darke & Hall, 2003; Darke & Zador, 1996). Polydrug use – particularly the concurrent use of CNS depressants such as alcohol and benzodiazepines – seems to play a more important role in the vast majority of overdoses (ANCD, 2003a, 2003b; Coffin et al., 2003; Cook & Davies, 2001; Darke & Hall, 2003; Darke et al., 2000).

Particularly among recently released prisoners, a number of other factors may also impact on the risk of overdose. For example Shewan and colleagues (2001) have noted evidence among ex-prisoners of "a flurry of injecting risk behaviour … soon after release" (p. 19). Warner-Smith, Darke, Lynskey and Hall (2001) have argued that smoking-related lung disease and liver dysfunction associated with Hepatitis C may also increase the risk of overdose: Prisoners in Australia are distinguished by their high rates of tobacco consumption and Hepatitis C infection (Butler, Boonwaat, & Hailstone, 2005; Butler & Milner, 2003; DCS, 2000; Hockings, Young, Falconer, & O'Rourke, 2002). According to Davidson and colleagues (2003) single-room occupancy – a common living arrangement among socially isolated, recently released prisoners (Baldry et al., 2003) -- may be another risk factor for overdose. This risk could only be compounded by an understandable reluctance to call for assistance, due to fear of police involvement (ANCD, 2003b). Finally, but importantly, the risk of overdose seems to be compounded by poor mental health (ANCD, 2003a, 2003b; Galea & Coffin, 2003; Heale, Dietze, & Fry, 2003; Jones et al., 2002), particularly depression and suicidal ideation (McGregor et al., 2002; Tobin & Latkin, 2003). In addition to their high rates of drug use and high rates of overdose, prisoners in Australia, particularly females, are characterised by a high rate of mental health problems before, during and after their incarceration (Baldry et al., 2003; Butler & Allnutt, 2003; Butler & Milner, 2003; DCS, 2000).

An understanding of patterns of substance use among recently released prisoners is therefore important for at least two reasons: First, given the well-established link between illicit drug use and criminal activity, the high proportion of Australian prisoners incarcerated for drug-related offences, and the high rate of recidivism among ex-prisoners in Australia, an understanding of the nature and extent of illicit drug use among this group would inform pre-release programs, post-release service delivery and crime-prevention policies more broadly. Second, given the high incidence of illicit drug use among both prisoners and ex-prisoners, and the fact that illicit drug use is linked to a wide range of health risks including Hepatitis C, mental health problems and

overdose, an understanding of alcohol and drug use patterns in this group is also important from a public health perspective.

Aims

In recognition of the need for an improved understanding of the experiences of prisoners in Australia after they are released, this project had three key objectives:

1. To describe the *patterns of* drug and alcohol use, mental health status and broader socio-economic status of recently released prisoners;
2. To identify the *prevalence* of suspected risk factors for overdose among recently released prisoners;
3. To identify *predictors of* re-incarceration within a six-month period (including pre-incarceration patterns of drug use).

METHOD

Study Design

The PREP-Q study was a longitudinal study of a convenience sample of male and female prisoners being released from custody in Queensland, Australia. Participants were recruited and interviewed prior to release from custody, then interviewed on another two occasions post-release.

Sampling Frame

The sample included male and female, Indigenous and non-Indigenous adult prisoners in secure custody in south-east Queensland. Due to resource limitations, it was not possible to recruit prisoners from outside of south-east Queensland. Selection criteria included:

- Aged 17 years or over;
- Expecting to be release from custody in the succeeding four weeks;
- Not on remand (due to uncertainty surrounding release);
- Held in one of the centres from which recruitment took place;
- Able to provide informed, written consent to participate (and provided such consent).

Recruitment

Potential participants were identified from DCS records and approached by an interviewer not affiliated with DCS, and invited to participate in the study. Participation was voluntary and confidential and signed, informed consent was obtained from all participants. For those who chose not to participate, the interviewer recorded basic information (gender, estimated age and ethnicity, reason for non-participation, prison) in a 'non-participant log book', to allow for comparison between those who agreed and those who declined to participate.

The study received ethical clearance from the University of Queensland's *Behavioural and Social Sciences Ethical Review Committee*, and the Queensland Government Department of Corrective Services *Research Committee*. All study participants were recruited between September 2004 and August 2005.

Survey Design

Wherever possible, the survey instrument included established, well-validated measures, or adapted existing items from similar studies. Validated measures included the Alcohol Use Disorders Identification Test (AUDIT) (Babor, de la Fuente, Saunders, & Grant, 1992), the Kessler Psychological Distress Scale (K10) (Kessler et al., 2002), the SF-8 Health Survey (Ware, Kosinski, Dewey, & Gandek, 2001) and the Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001).

Pre-Release Interviews

Pre-release interviews occurred at the time of recruitment, 4 weeks or less prior to the participant's scheduled release date, and were conducted face-to-face in a room with only the participant and interviewer present. During the pre-release interview, participants provided multiple sets of contact details in the community, in order to maximise the chances of successful follow-up post-release.

The pre-release survey included questions regarding:

1. demographics
2. sentence details
3. circumstances prior to incarceration
    a. living arrangements and employment/income
    b. patterns of alcohol (AUDIT) and illicit drug use
    c. history of overdose (including in prison)
4. Current health and risk behaviours:
    a. general health (SF-8)
    b. blood-borne virus (BBV) status
    c. tattoos and injecting drug use
    d. tobacco consumption
    e. problem gambling (CPGI)
    f. mental health (including K10)
5. interventions/treatment received in prison
6. post-release arrangements and expectations
    a. accommodation
    b. employment/income
    c. substance use
    d. offending

Post-Release Interviews

Post-release interviews were conducted over the telephone; the first post-release interview occurred on average 34 days after the participant's release from custody, with the second post-release interview occurring on average 120 days post-release. In accordance with best research practice (Festinger et al., 2005; Fry et al., 2005; Ritter, Fry, & Swan, 2003) participants were reimbursed $20 for their time in completing follow-up interviews; this reimbursement was sent as an unsecured money order to an address nominated by the participant.

The first post-release survey included questions regarding:

1. details of release circumstances
2. general and mental health (SF-8, BBV status, K10)
3. current licit and illicit drug use
    a. quantity and frequency
    b. needle risk taking
    c. overdose since release
4. current circumstances
    a. employment/income/spending
    b. accommodation
5. contact with police/corrections since release

In order to facilitate calculation of time in custody and time since release, participants also indicated the date on which they were released from custody. The difference between this date and their date of incarceration was calculated as 'time served'; the time from date of release to date of follow-up interview was calculated as 'time since release'.

The second post-release interview included all of the items from the first post-release interview, and also:

6. current usual alcohol consumption (AUDIT)
7. current gambling behaviour (CPGI)

RESULTS

Sample

Participants were a convenience sample of 160 male (n = 108) and female (n = 52) adult prisoners recruited from five custodial correctional centres in Queensland, Australia. Centres from which participants were recruited ranged from minimum to maximum security and included Sir David Longland Correctional Centre (SDL, males), Woodford Correctional Centre (males), Numinbah Correctional Centre (males and females), Brisbane Women's Correctional Centre (BWCC, females) and Helena Jones Correctional Centre (females).

Table 1 compares demographic characteristics of those who participated in the study, with those who were approached but declined. There was no significant difference between participants and non-participants with respect to age, gender or Indigenous status, however non-participants were over-represented among prisoners from Sir David Longland Correctional Centre ($p < .05$). Among those who did not participate, 78% refused and 22% did not meet recruitment criteria. Excluding those ineligible to participate, the recruitment rate was 70%.

Table 1. Comparison of participants and non-participants, and reasons for non-participation

	Participants (N=160)	Non-participants (N=87)
Mean age (years) [a]	32.6	34.0
Prison (%) *		
Woodford	59	60
Numinbah	8	5
SDL	3	13
BWCC	23	18
Helena Jones	8	5
Gender (% male)	68	77
Indigenous (%) [a]	23	19
Reason for non-participation (%)		
Declined	--	78
Not eligible	--	22

[a] Among non-participants, age and Indigenous status were estimated by interviewers
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 2 summarises demographic characteristics of the sample by gender. Just over two thirds of the sample was male and females were, on average, slightly older than males, although this difference was not significant ($p > .05$). Consistent with the total prisoner population (ABS, 2005a, 2005b), more than one in five participants (23%) identified as Indigenous and the mean age was 32.6 years. Almost two thirds of participants reported a history of prior incarceration as an adult, and 20% reported a juvenile prison history.

The participant sample differed from the overall Australian prison population in at least two important ways: First, whereas 26% of prisoners in Australia were born overseas (ABS, 2005a), only 13% of the present sample reported being born outside of Australia. Second, whereas the average aggregate sentence length among Australian prisoners is 3 years (ABS, 2005b), in the present sample it was only 6 months. Given that we were recruiting prisoners about to be released from custody, this bias towards prisoners serving shorter sentences is not unexpected.

There were a number of significant gender differences in the study sample. First, whereas 44% of male participants had less than a grade 10 education, and only 5% reported holding a trade or

tertiary qualification, 75% of female participants had completed grade 10 and 15% reported holding a trade qualification or diploma. Women (19%) were less likely than men (31%) to report that their main source of income prior to incarceration was wages/salary, but they were also less likely to have a history of juvenile (6% *vs.* 27%) or adult (37% *vs.* 75%) incarceration. Importantly, women (46%) were significantly more likely than men (13%) to have been living with dependent children prior to incarceration ($p < .001$).

Table 2. Demographics and criminal history, by gender

	Male (n = 108)	Female (n = 52)	All (N = 160)
% male	--	--	67.5
Mean age (years)	32.0	33.7	32.6
Indigenous (%)	24	21	23
Born outside Australia (%)	16	6	13
Education completed (%) **			
Primary	6	2	4
Some secondary	38	23	33
Junior high	33	40	36
Senior high	19	14	17
Trade/diploma	3	15	7
University	2	0	1
Other	0	6	2
Marital status (%)			
Never married	61	50	58
Married/de facto	21	37	26
Widowed	1	2	1
Divorced	9	4	8
Separated	7	8	8
% living with dependent children prior to incarceration ***	13	46	24
Income pre-incarceration (%) **			
Wages/salary	31	19	27
Social security/pension	48	54	50
Home duties	1	10	4
Criminal activity	20	17	19
Index offence (%) *			
Drug related	19	25	21
Property related	19	39	26
Robbery/extortion	8	6	8
Violence	37	17	31
Other	17	14	16
% previous incarceration			
Juvenile **	27	6	20
Adult ***	75	37	63
Time served (years)			
Median	0.5	0.5	0.5
Range	0.08 – 13.97	0.08 – 3.50	0.08 – 13.97

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 compares the demographic characteristics of Indigenous (n=37) and non-Indigenous (n=123) participants. Compared with non-Indigenous participants, Indigenous participants were less likely to have completed a Grade 10 education (38% *vs.* 70%, $p < .05$), and more likely to have a history of both juvenile (41% *vs.* 14%, $p < .01$) and adult (84% *vs.* 56%, $p < .001$) incarceration. Not surprisingly, Indigenous participants were less likely to report having been born overseas (3% *vs.* 15%, $p < .05$).

Table 3. Demographics and criminal history, by Indigenous status

	Indigenous (n = 37)	Non-Indigenous (n = 123)
Mean age (years)	29.8	33.4
Born outside Australia (%)*	3.0	15
Education completed (%) *		
Primary	5	4
Some secondary	57	26
Junior high	22	40
Senior high	16	17
Trade/diploma	0	9
University	0	2
Other	0	2
Marital status (%)		
Never married	68	55
Married/de facto	16	29
Widowed	0	2
Divorced	3	9
Separated	14	6
% living with dependent children prior to incarceration	19	25
Income pre-incarceration (%)		
Wages/salary	22	29
Social security/pension	65	45
Home duties	3	4
Criminal activity	11	22
Index offence (%)		
Drug related	14	23
Property related	19	28
Robbery/extortion	8	7
Violence	49	25
Other	11	17
% previous incarceration		
Juvenile ***	41	14
Adult **	84	56
Time served (years)		
Median	0.5	0.5
Range	0.14 – 13.33	0.08 – 13.89

* $p < .05$, ** $p < .01$, *** $p < .001$

Pre-Release

Table 4 summarises the pre-incarceration living circumstances of participants, by gender. Prior to incarceration 51% of males were unemployed or receiving a pension (*vs.* 40% of females), while 33% were employed on a full-time, part-time or casual basis (*vs.* 19% of females) and 13% reported obtaining their income primarily through criminal activity (*vs.* 10% of females). Almost one in five females (19%) reported their primary responsibility prior to incarceration as 'home duties' (*vs.* 0% of males). Consistent with this, females were significantly more likely than males to report that they were living with dependent children prior to incarceration (46% *vs.* 13%, $p < .001$), while males were significantly more likely to report living alone prior to incarceration (20% *vs.* 8%, $p < .05$).

Compared to males, female participants also reported on average receiving a significantly lower income prior to incarceration: Whereas 41% of males reported a weekly income in excess of $600, only 23% of females reported an income at this level. There were no significant differences between males and females with respect to type of accommodation, with the majority reporting living in either rented accommodation (50%) or a residence owned by themselves or their family (24%).

Table 4. Circumstances prior to incarceration, by gender

	Male (n=108)	Female (n=52)	Full sample (N=160)
Employment status ***			
Full time	21	10	18
Part-time/casual	12	10	11
Student	1	6	3
Unemployed/pension	51	40	48
Home duties	0	19	6
Criminal activity	13	10	12
Other	2	6	3
Living with… (%)			
Spouse/*de facto*	38	46	41
Partner <3 months	2	4	3
Parents	10	6	9
Other family	17	12	15
Friends	18	23	19
Alone *	20	8	16
Dependent children ***	13	46	24
Median number	3	2	2
Range	1 – 7	1 – 6	1 – 7
Income, all sources (%) *			
< $160/week	6	10	7
$160 - $199/week	19	14	18
$200 - $299/week	16	12	14
$300 - $399/week	8	23	13
$400 - $499/week	2	10	4
$500 - $599/week	8	10	9
$600 - $699/week	7	4	6
$700 - $799/week	7	2	5
$800 + /week	27	17	24
Accommodation (%)			
Own/family home	24	23	24
Privately rented house/flat	51	48	50
Public housing	7	10	8
Squat/improvised/street	7	6	6
Boarding house	3	4	3
Other	9	10	9

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5 summarises the substance use history of male and female participants. Over a third of participants reported harmful levels of alcohol consumption in the 12 weeks prior to incarceration, with a further 16% reporting hazardous consumption levels in this time. There were significant gender differences in usual alcohol consumption with males significantly more likely to report harmful levels of consumption (45% *vs.* 19%) and females more likely to report abstinence or non-hazardous alcohol consumption (38% *vs.* 65%) ($p < .01$). The vast majority of participants (83%) reported currently smoking tobacco, and there was no significant difference in smoking rates between males (85%) and females (77%).

Similarly, the vast majority of participants (92%) reported a history of illicit drug use, with males (95%) significantly more likely than females (85%) to report illicit drug use ($p < .05$). For both males and females, the most commonly used illicit drugs were cannabis and amphetamines. Almost two thirds of the sample (64%) reported a history of injecting drug use (see Table 5).

Finally, in the weeks prior to release more than a quarter of participants (28%) reported experiencing high or very high levels of psychological distress, based on K10 scores. Although females (40%) were less likely than males (57%) to report low levels of distress, this difference was not statistically significant ($p > .05$).

Table 5. Substance use history and pre-release psychological distress, by gender

	Male (n = 108)	Female (n = 52)	Full sample (N = 160)
Alcohol (% AUDIT category) **			
Non-drinker	19	31	23
Non-hazardous	19	35	24
Hazardous	17	15	16
Harmful	45	19	37
Tobacco (%)			
Ever used	89	89	89
Current smoker	85	77	83
Illicit drug use history (% ever used)			
Cannabis ***	94	75	88
Inhalants	25	25	25
Hallucinogens ***	64	35	54
Ecstasy (MDMA)	44	42	43
Amphetamines *	76	60	71
Cocaine	38	35	37
Benzodiazepines	41	50	44
Heroin	44	33	41
Morphine	34	31	33
Any illicit *	95	85	92
IV drug use history (%)	69	54	64
Mean no. drugs injected#	3.53	4.04	3.67
Overdose history			
Ever OD in prison (%)	1	0	1
Ever OD outside prison (%)	22	14	19
Present at OD in prison (%)	7	4	6
Psychological distress - K10 (%)			
Low	57	40	51
Moderate	18	29	21
High	19	25	21
Very high	7	6	6

among those with a history of injecting, from a list of 13 drug classes
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6 compares the health and blood-borne virus (BBV) status of participants prior to release, by gender. The SF-8 measure provides two summary scores: a Physical Component Summary (PCS) score and a Mental Component Summary (MCS) score. There are at present no Australian normative data for the SF-8, however the summary scores can be compared with SF-36 summary scores, for which Australian normative data are available (ABS, 1997). Among males aged 25-34 the mean PCS score in the population is 53.4 (vs. 53.3 in the present sample) and the mean MCS score is 50.9 (vs. 47.9 in the present sample). Among females aged 25-34 the mean PCS score is 52.6 (*vs.* 51.3 in the present sample) and the mean MCS score is 48.3 (*vs.* 47.5 in the present sample). Although none of the mean scores in this sample differ significantly from population norms, responses to the SF-8 indicate that whereas the physical health of both male and female prisoners was typical of age- and sex-matched peers in the community, male prisoners (and to a lesser extent, female prisoners) often reported below average mental health prior to release from custody.

Table 6 also shows the self-reported blood-borne virus (BBV) status of participants prior to release, by gender. A small proportion of participants (2.6%) reported being Hepatitis B positive, with 0.7% (1 participant) reporting being HIV positive. Overall, 28% of the sample reported being HCV positive, although a further 13% of males and 11% of males reported having been tested, but not knowing the results of the test. Blood-borne virus testing is not compulsory in Queensland prisons and significantly more females (12%) than males (3%) reported having never been tested for HCV ($p < .01$).

One identified risk factor for BBV transmission is unsafe tattooing (Hellard, Crofts, & Hocking, 2002). Almost three quarters (72%) of participants reported having at least one tattoo, with 36% reporting receiving a tattoo from a non-qualified person in the community, and 17% reporting receiving a tattoo while in prison. Those who reported having received at least one tattoo while in prison were significantly more likely to also report being HCV positive (50%) than those who reported never receiving a tattoo in prison (24%) ($p < .01$).

Table 6. General health prior to release, by gender

	Male (n=108)	Female (n=52)	Total (N=160)
SF-8 PCS mean score	53.3	51.3	52.7
SF-8 MCS mean score	47.9	47.5	47.8
Hep B status (%)			
Never tested	3	6	4
Negative (of those tested)	87	82	85
Positive (of those tested)	2	4	3
Don't know (of those tested)	11	14	12
Hep C status (%)			
Never tested**	3	12	6
Negative	59	62	60
Positive	28	27	28
Don't know	13	11	13
HIV status (%)			
Never tested	7	15	10
Negative	87	86	90
Positive	1	0	1
Don't know	12	4	10
Tattoos (%)			
None	24	37	28
Professional only	26	29	27
Non-professional (community)	37	35	36
Non-professional (prison)	19	10	17
Of those who received tattoos in prison, % HCV positive	52	40	50

Note: BBV status based on self-report, which may be an under-estimate of the true incidence (Hockings et al., 2002)
* $p < .05$, ** $p < .01$, *** $p < .001$

Participants also completed the nine-item Canadian Problem Gambling Index (CPGI, Ferris & Wynne, 2001) with respect to their gambling behaviour during the preceding 12 weeks, while in prison. In contrast to the DCS Problem Gambling Prevalence Survey 2002 (DCS, 2002), which estimated that 15% of adult prisoners in Queensland were moderate risk gamblers and 19.5% were problem gamblers, very few participants in the present study reported risky gambling behaviour: Only 37% reported gambling at all in the last 12 weeks, and of those who had gambled, 17% were categorised as moderate-risk gamblers, and 17% as problem gamblers (in total, 13% of the full sample). This discrepancy can be explained by a difference in method: Whereas in the DCS survey participants were asked about their gambling behaviour "in the 12 months prior to your incarceration" (p. 4), the present study sought to investigate gambling behaviour in prison and asked about gambling behaviour "in the last 12 weeks". Interestingly, although males were significantly more likely than females to report recent gambling ($p < .001$), females who did report recent gambling were more likely to report moderate risk or problem gambling (see Table 7).

Table 7. Gambling in prison, by gender

	Male (n=108)	Female (n=52)	Total (N=160)
Gambled in last 12 weeks (%)***	48	17	37
CPGI score category (%) [a]			
Non-problem gambling	47	14	42
Low risk gambling	24	14	23
Moderate risk gambling	13	43	17
Problem gambling	16	29	17

[a] among those who reported gambling in the last 12 weeks
* $p < .05$, ** $p < .01$, *** $p < .001$

Participants were also asked to indicate which prison programs they had started and completed during their current custodial sentence (Table 8). Perhaps due to the fact that many participants were serving short sentences, only a minority of participants reported completing any programs, with only 15% reporting completing any of the substance-related programs. During the period of recruitment DCS introduced a new program designed to prepare prisoners for return to the community – the Transitions program – however as most participants were recruited prior to implementation of Transitions, only 5% of participants reported having completed this program prior to release (Table 8).

Table 8. DCS intervention programs started and completed

	% started	% completed
Cognitive Skills	19	14
Anger Management	13	11
Ending Offending	3	3
Substance Abuse Education and Awareness Program (SAEAP)	11	9
Substance Abuse Relapse Prevention Program (SARPP) – 6 month program	8	7
Substance Abuse Preventing and Managing Relapse Program (SAPMR) – 10 sessions	13	10
Violence Intervention Program	2	1
Ending Family Violence	1	1
Sex Offender Intervention Program	0	0
Sex Offender Treatment Program (SOTP)	0	0
"Off The Hook" program	0	0
Do-it Program	4	4
Transitions Program	6	5

Of particular interest in the current study was participants' plans and expectations regarding their release. Participants were asked what plans they had made for the immediate post-release period with respect to accommodation and employment or other income; participants were also asked what their intentions were with respect to substance use and criminal activity. In contrast to this, participants were also asked to indicate what they expected to occur "realistically" in each of these domains. Responses to these questions are summarised below in Table 9, separately for males and females.

With respect to accommodation after release, 19% of males and 15% of females reported having made no arrangements. The majority reported having arranged accommodation either in their own or a family home, or in rented accommodation, however small proportions reported having arranged public housing, a room in a boarding house or 'other' (typically temporary accommodation with a friend or acquaintance). The majority of participants indicated that they considered their plans realistic, however some seemed to have less optimistic expectations: 5% of males and 10% of females reported expecting to be in public housing, 3% of males and 4% of

females expected to be staying in a boarding house, 2% of both males and females expected to be homeless of living in a squat, and 13% of males and 6% of females reported having some other 'realistic' expectation, typically involving temporary accommodation with friends or acquaintances.

Fewer participants had made any arrangements for income post-release: 44% of males and 33% of females had made no arrangements, while 16% of males and 33% of females had arranged to receive unemployment benefits or a pension. By contrast, 38% of males and 58% of females expected that "realistically", they would be receiving benefits or a pension post-release.

The vast majority of participants intended to use one or more substances post-release, most commonly tobacco (80% of males and 77% of females) and alcohol (60% of males and 60% of females), however a substantial minority reported an intention to use an illicit drug (49% of males and 35% of females). The illicit drugs that participants most commonly reported intending to use post-release were the same ones they reported using prior to incarceration: cannabis (40% of males and 19% of females) and methamphetamines (13% of males and 17% of females). When asked about what they expected to occur "realistically", the proportion of participants expecting to use licit and illicit drugs post-release increased substantially (Table 9).

Finally, participants were asked about intentions and expectations about criminal behaviour post-release. A minority of both males (10%) and females (4%) reported an intention to engage in criminal activity (usually drug possession) post-release. When asked about what was likely to happen "realistically" the proportion expecting to engage in criminal behaviour post-release increased slightly (Table 9).

Table 9. Pre-release arrangements and expectations, by gender

	Males (n=108)		Females (n=52)	
	Arranged/ intended	Expected	Arranged/ Intended	Expected
Accommodation (%)				
None	19	--	15	--
Own/family home	41	29	44	46
Privately rented flat/house	27	49	31	32
Public housing	3	5	4	10
Boarding house/hostel	0	3	2	4
Squat/improvised/street	1	2	0	2
Other	10	13	4	6
Employment/income (%)				
None	44	--	33	--
Full-time	26	40	17	21
Part-time/casual	12	17	8	10
Allowance/benefits/pension	16	38	33	58
Home duties	0	1	8	10
Criminal activity	1	5	0	0
Substance use (%)				
None	7	6	6	6
Tobacco	80	82	77	77
Alcohol	60	66	60	62
Cannabis	40	48	19	21
Methamphetamine	13	21	17	19
Heroin	7	9	4	4
Any illicit	49	61	35	35
Criminal activity (%)	10	13	4	6

Post-Release

Timing of follow-up interviews

Due to the challenges involved in contacting many participants, it was not possible to conduct post-release interviews on a set date. Rather, while some participants were easy to contact, other interviews often occurred after weeks of attempting to contact participants who had moved to a different residence, who had no stable residence, or who were unable to receive or respond to voicemail messages because, for example, they had run out of credit on a prepaid mobile phone SIM card.

The first post-release interview took place a median of 53 days post-release (*mode* = 34 days), with all such interviews occurring between 27 and 154 days post-release. The second post-release interview occurred a median of 120 days post-release (*mode* = 120 days), with all such interviews occurring between 76 and 226 days post-release.

Attrition

Intensive efforts were made to contact all participants, using all of the contact details (telephone, mailing address, email) provided by participants, however a number of participants could not be contacted for interview post-release. For the first post-release interview the follow-up rate was 65%; for the second post-release interview the follow-up rate was 55%. Table 10 compares those who were successfully interviewed at each follow-up with the entire sample (pre-release). Compared with those who were successfully followed up post-release, those who were lost to follow-up were more likely to be Indigenous ($p < .01$). Compared with the full sample, those interviewed at Follow-up 2 were less likely to have had a history of previous incarceration ($p < .05$). There was no significant relationship between drug use history and attrition, indicating that the patterns of drug use among those successfully followed up are likely to be representative of the whole sample. Furthermore, there was no association between attrition and pre-release psychological distress, mental health or physical health (all $p > .05$).

Table 10. Pre-release variables associated with attrition post-release

	Pre-release	Follow up 1	Follow up 2
Indigenous (%)	23	14**	14**
Born outside Australia (%)	13	14	16
Education completed (%)			
Primary	4	4	1
Some secondary	33	30	29
Junior high	36	37	40
Senior high	17	21	21
Trade/diploma	7	7	8
University	1	0	0
Marital status (%)			
Never married	58	57	53
Married/de facto	26	29	30
Widowed	1	1	1
Divorced	8	9	10
Separated	8	4	5
Living with dependent children prior to incarceration (%)	24	26	25
Income pre-incarceration (%)			
Wages/salary	27	30	31
Social security/pension	50	47	48
Home duties	4	4	5
Criminal activity	19	19	16
Index offence (%)			
Drug related	23	19	17
Property related	28	21	22
Robbery/extortion	7	8	8
Violence	25	35	36
Other	17	18	17
Living alone pre-incarceration (%)	16	19	16
Previous incarceration (%)			
Juvenile	20	15	13*
Adult	63	59	55*
Illicit drug use (ever %)			
Cannabis	88	88	86
Inhalants	25	24	23
Hallucinogens	54	60	58
Ecstasy (MDMA)	43	50	47
Amphetamines	71	70	69
Cocaine	37	40	35
Benzodiazepines	44	45	46
Heroin	41	42	39
Morphine	33	34	35
Any illicit	92	90	88
Psychological distress - K10 (%)			
Low	51	49	48
Moderate	21	17	19
High	21	24	22
Very high	6	10	12
SF-8 PCS mean score pre-release	52.7	50.8	50.2
SF-8 MCS mean score pre-release	47.8	46.7	46.9

* $p < .05$, ** $p < .01$, *** $p < .001$

Follow-up 1

Table 11 summarises the self-reported substance use and mental health of participants interviewed at Follow-up 1. The vast majority reported recent use of tobacco (84%), and males (79%) were significantly more likely than females (57%) to report recent alcohol use ($p < .05$). Although about one in two males (49%) had reported an intention to use illicit drugs post-release, almost two thirds (64%) reported actually doing so at Follow-up 1. There was greater consistency between intentions and behaviour for females, with 35% reporting an intention to use drugs post-release, and 37% of those interviewed reporting actually using illicit drugs in the 4 weeks prior to interview at Follow-up 1. Consistent with their drug use histories, males were significantly more likely than females to report recent drug use at Follow-up 1 ($p < .01$). Among both males and females, the most commonly used illicit drugs were cannabis and amphetamines (Table 11).

At Follow-up 1 half of the sample (50%) reported at least moderate psychological distress, with one in five females (20%) and almost one in five males (18%) reporting a very high level of distress. There was no significant difference between males and females with respect to psychological distress at Follow-up 1 ($p > .05$). SF-8 scores indicated that on average, the physical and mental health of participants had diminished since release. Prior to release males scored on average 53.3 on the physical health component scale; this had dropped to 50.0 at Follow-up 1 – below the population mean of 53.4 (ABS, 1997). Mental health scores for males remained largely unchanged from an average of 47.9 prior to release (already below the population mean of 50.9) to 47.8 post-release. Conversely, whereas for females there was no change in physical functioning (mean PCS score at Follow-up 1 = 51.7, *vs.* 51.3 pre-release), MCS scores fell from a mean of 47.5 pre-release to 43.3 at follow-up 1, below the population mean of 48.3 (ABS, 1997). There was no significant difference between males and females in mean SF-8 scores (all $p > .05$).

Table 11. Follow up 1: Current substance use, physical and mental health by gender

	Male (n = 61)	Female (n = 30)	All (N = 91)
Drug use (% past 4 weeks)			
Tobacco	87	77	84
Alcohol*	79	57	71
Cannabis	49	33	44
Inhalants	0	0	0
Hallucinogens	3	0	2
Ecstasy (MDMA)	18	3	13
Amphetamines	36	23	32
Cocaine	13	3	10
Benzodiazepines	13	3	10
Heroin	15	7	12
Morphine	7	3	6
Any illicit**	64	37	55
Psychological distress - K10 (%)			
Low	49	50	50
Moderate	23	20	22
High	10	10	10
Very high	18	20	19
SF-8 PCS mean score	50.0	51.7	50.5
SF-8 MCS mean score	47.8	43.3	46.4

* $p < .05$, ** $p < .01$, *** $p < .001$

One goal of the present study was to identify the prevalence of suspected overdose risk factors among ex-prisoners. Table 12 summarises the prevalence of suspected overdose risk factors among participants interviewed at Follow-up 1, by gender. Although single-room occupancy may

be a risk factor for overdose among ex-prisoners (Davidson et al., 2003), fewer than one in ten in the present sample reported living alone at the time of interview and only 6% reported usually injecting alone. Smoking-related lung disease and hepatic dysfunction may also increase the risk of overdose (Warner-Smith, Darke et al., 2001) and 79% of participants reported daily tobacco consumption in the 4 weeks prior to interview. Twenty-eight percent of participants also reported being HCV positive, with 16% of these drinking alcohol daily and a further 24% drinking at least every second day. Overall, 16% of males and 3% of females reported daily drinking in the 4 weeks prior to interview.

One factor which contributes to many overdoses is polydrug use, and in particular concurrent use of multiple CNS depressants (ANCD, 2003a; Cook & Davies, 2001; Darke & Hall, 2003). In the present sample more than one in ten participants reported using heroin *with other drugs* in the last 4 weeks, and 12% of male participants reported concurrent use of heroin and alcohol. Some researchers have observed high rates of risky injecting behaviour among ex-prisoners in the weeks after release (Shewan et al., 2001), however among those who reported injecting in the last 4 weeks (29% of participants), only 15% reported sharing injecting equipment with others – a rate of risk behaviour comparable with other groups of injecting drug users (Kinner & Fischer, 2005). Participants may have engaged in other injecting risk behaviours post-release, however qualitative or ethnographic methods may be more appropriate to the identification of these.

Poor mental health may be another risk factor for overdose (McGregor et al., 2002; Tobin & Latkin, 2003) and on average, participants interviewed at Follow-up 1 reported poorer mental health than age- and sex-matched members of the community (ABS, 1997). In fact, one in ten participants scored significantly below the mean ($p < .05$) on the mental health component of the SF-8, indicating a high degree of mental ill health in this group. One male participant, who reported poor mental health at Follow-up 1, also reported having overdosed in the 4 weeks prior to interview (see Sidebox 1).

Table 12. Follow Up 1: Overdose risk factors by gender

	Male (n=61)	Female (n=30)	Total (N=91)
Living alone (%)	8	7	8
Known HCV positive (%)	26	30	28
Current daily smoker (%)	82	73	79
Daily alcohol use (%) *	16	3	12
CNS depressant use (%)			
Heroin	15	7	12
Benzos	13	3	10
Morphine	7	3	6
Methadone	2	10	4
Physeptone	2	0	1
Buprenorphine	7	13	9
Polydrug use (%)			
Heroin with other drugs	13	7	11
Morphine with other drugs	2	0	1
Heroin/morphine with alcohol *	12	0	8
Heroin/morphine with benzos	2	3	2
Injecting risk behaviour (%)			
Injected last 4 weeks	33	20	29
Used syringe after someone [a]	15	17	15
Usually injecting alone	5	7	6
Mean SF-8 MCS score	10	10	10

[a] among those reporting injection in last 4 weeks
* $p < .05$, ** $p < .01$, *** $p < .001$

Sidebox 1: Case study of post-release overdose: 'John'

One male participant, aged 34 and interviewed at Follow-up 1, reported overdosing on heroin in the weeks prior to interview. "John" (not his real name) was a non-Indigenous Australian with a primary school education; he had never been married and had just completed his fourth period of incarceration, serving about 2 months for a drug-related offence. John had a lengthy history of substance use starting with tobacco at age 11, cannabis at age 14 and alcohol at age 15. By age 17 he had injected heroin and in the following years he also used hallucinogens, ecstasy, amphetamines, cocaine and benzodiazepines (e.g., Valium®, Temazepam). John had never participated in an opiate pharmacotherapy program and reported being Hepatitis C positive, resulting from sharing injection equipment during a previous prison sentence.

*John had a history of treatment for anxiety and depression and had overdosed on three previous occasions, in the community. Despite his history of substance use and mental health problems, John had not taken part in any substance use programs during his most recent sentence, nor had he completed the pre-release 'Transitions' program, which was available only to prisoners serving sentences of more than 12 months. During his pre-release interview he reported having made no plans for accommodation or income, although he expected to receive unemployment benefits in the community. He reported an intention to use no substances (other than tobacco) post-release, and indicated that he considered this expectation realistic. His K10 score put him in the 'high level of psychological distress' category, and while his SF-8 physical functioning summary score indicated that he considered his physical health to be good, his mental health was poor: His SF-8 mental component summary score of 19.3 was 2.6 standard deviations below the general population mean of 50.9 and 2.2 SD below the mean in the study sample pre-release (*M = *46.4).*

At the time of interview John was smoking tobacco daily, but he stated that he had not consumed alcohol for a number of years. Since his release he had been receiving treatment for his mental health problems but he had also used a range of illicit drugs in the preceding four weeks including amphetamines (injecting almost every day), heroin (injecting every second day), ecstasy (once a week) and benzodiazepines (once a week). He reported usually injecting in company and using heroin in conjunction with tobacco and amphetamines. John was receiving unemployment benefits of between $120 and $159 per week, all of which he was spending on illicit drugs; he reported having moved house six times in the two and a half months since his release, usually due to failure to pay the rent.

Not surprisingly, John indicated that things had turned out worse than expected since his release. He told us that although he had always "lived off the street", he found it "very hard at the moment - cold, hard, lean - no money anywhere". These difficulties, coupled with his experience of overdose, had motivated John to "go straight" and at the time of interview, he had been abstinent from illicit drugs for four days.

Follow-up 2

Seventy-seven participants were successfully interviewed at Follow-up 2, on average 120 days (4 months) post-release. More than three quarters of those interviewed (78%) were smoking tobacco at this time, with three in four (75%) currently drinking alcohol. More males (61%) than females (46%) reported illicit drug use in the last 4 weeks, with males significantly more likely than females to report recent cannabis use (57% *vs.* 31%, $p < .05$).

Forty-two percent of participants reported usually drinking at hazardous (22%) or harmful (20%) levels over the last 12 weeks, with males significantly more likely than females to drink at risky levels ($p < .05$). Overall, 29% of male participants reporting usually drinking at hazardous levels in the months prior to interview, with almost one in four (24%) drinking at harmful levels.

Based on K10 scores, the proportion of participants experiencing very high levels of psychological distress had reduced from Follow-up 1 (19%) to Follow-up 2 (12%), however one in four participants (25%) still reported high or very high levels of psychological distress at Follow-up 2, four months after their release from custody (see Table 13).

Participants' SF-8 physical and mental health summary scores were again compared with Australian norms (ABS, 1997), with the average score among participants (*MCS mean* = 47.8, *PCS mean* = 49.2) lower than among age-matched members of the community (*MCS mean* = 50.9, *PCS mean* = 53.4). More than one in ten participants (12%) reported a physical health score significantly lower than the population mean ($p < .05$), and almost one in ten (8%) reported a mental health score below the population mean ($p < .05$). Most of those with a significantly sub-normal physical health score were male, and all of those reporting significantly sub-normal mental health scores at Follow-up 2 were male.

Table 13. Follow-up 2: Current substance use, physical and mental health, by gender

	Male (n = 51)	Female (n = 26)	All (N = 77)
Drug use history (% past 4 weeks)			
Tobacco	78	77	78
Alcohol	80	65	75
Cannabis*	57	31	48
Inhalants	0	0	0
Hallucinogens	2	0	1
Ecstasy (MDMA)	10	4	8
Amphetamines	28	15	23
Cocaine	6	0	4
Benzodiazepines	14	15	14
Heroin	8	12	9
Morphine	8	4	7
Any Illicit drug	61	46	56
AUDIT Usual alcohol consumption (%) *			
Non-drinker	14	27	18
Non-hazardous	33	54	40
Hazardous	29	8	22
Harmful	24	12	20
Psychological distress - K10 (%)			
Low	49	69	56
Moderate	28	4	20
High	14	12	13
Very high	10	15	12
SF-8 PCS mean score	49.3	49.0	49.2
SF-8 MCS mean score	47.9	47.4	47.8

* $p < .05$, ** $p < .01$, *** $p < .001$

Patterns over time in the physical and mental health of participants (SF-8 scores) are shown in Figures 1 and 2, for male and female participants separately. Prior to release, males reported their physical health to be roughly comparable to that of age-matched males in the general population, however their mental health was on average poorer than that of the general population. Following release, physical health declined (although not significantly, $p > .05$), however there was no change in mental health (see Figure 1).

For females, the pattern was different. Prior to release, female participants reported physical and mental health scores slightly below the (age- and sex-matched) population norm (ABS, 1997). At Follow-up 1 there had been little change in physical health, however the average mental health score dropped. At Follow-up 2 the reverse occurred: MCS scores returned to pre-release levels, while PCS scores fell (Figure 2). None of these changes over time was statistically significant ($p > .05$).

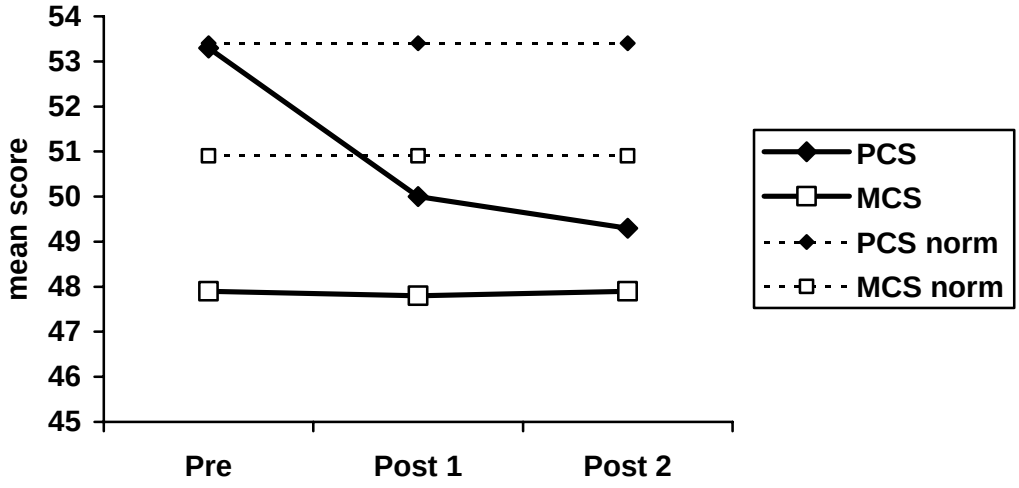

Figure 1. Mean SF-8 physical and mental health functioning summary scores at each phase of data collection, for males

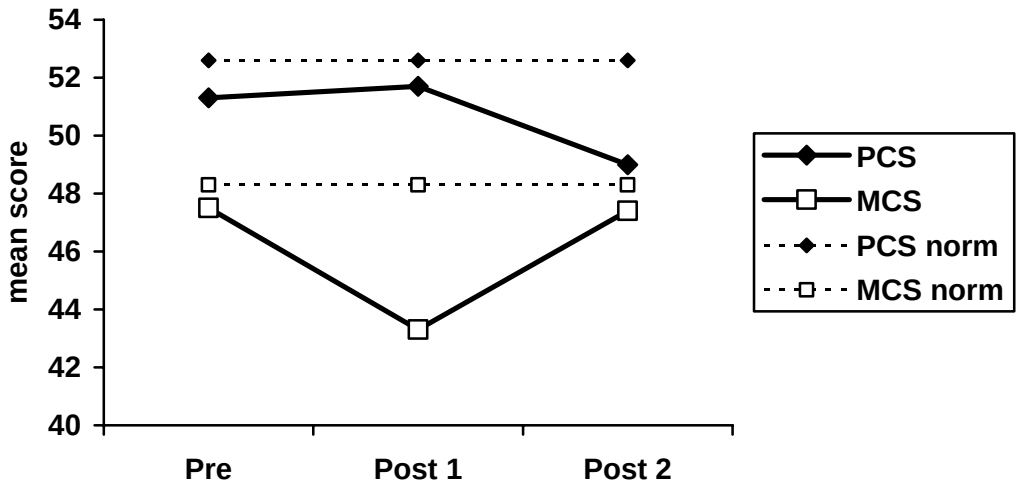

Figure 2. Mean SF-8 physical and mental health functioning summary scores at each phase of data collection, for females

Figure 3 shows the proportion of male and female participants who reported experiencing high or very high levels of psychological distress prior to release and at Follow-up 1 and 2, based on K10 scores. Prior to release about one in three females and one in four males reported high or very high psychological distress. The proportion of males reporting high/very high distress increased slightly post-release, however for both males and females this proportion had declined by Follow-up 2. At Follow-up 2 around one in four participants reported high or very high levels of psychological distress. Again, however, the prevalence of high/very high psychological distress among participants did not change significantly during the study period ($p > .05$).

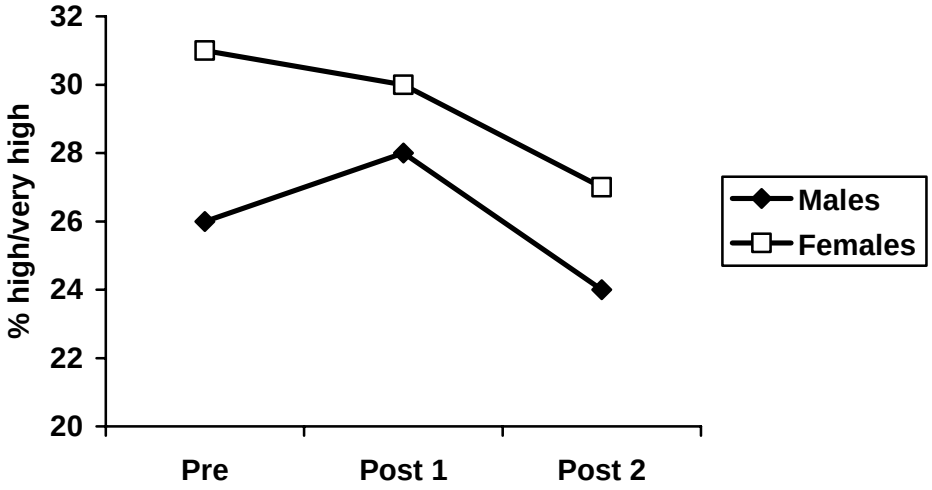

Figure 3. Proportion of male and female participants reporting high or very high levels of psychological distress at each phase of data collection

Table 14 shows the proportion of participants reporting gambling in the last 12 weeks, at Follow-up 2. Overall, 81% of participants reported recent gambling, however almost two thirds of these (61%) reported non-problematic gambling in this time. Nevertheless, one in five reported either moderate risk (5%) or problem (15%) gambling over the previous 12 weeks. There was no significant difference in rates of gambling behaviour between males and females ($p > .05$).

Table 14. Gambling at Follow up 2, by gender

	Male (n=51)	Female (n=26)	Total (N=77)
Gambled in last 12 weeks (%)	86	69	81
CPGI score category (%) [a]			
Non-problem gambling	57	72	61
Low risk gambling	25	6	19
Moderate risk gambling	2	11	5
Problem gambling	16	11	15

[a] among those who reported gambling in the last 12 weeks
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 15 summarises the prevalence of overdose risk factors among participants interviewed at Follow-up 2, by gender. Compared to Follow-up 1, the proportion of males reporting living alone increased (from 8% to 12%). Fewer participants at Follow-up 2 reported daily smoking or daily drinking, however despite this, AUDIT scores indicated that more than 50% of males and one in five females were drinking at hazardous or harmful levels. At Follow-up 2 just under one in ten participants (9%) reported recent heroin use, with females (12%) more likely than males (4%) to report using heroin in combination with other drugs. Whereas at Follow-up 1 one in ten participants reported significantly impaired mental health (SF-8), at Follow-up 2 12% of males and no female participants reported SF-8 scores at this level. Among those interviewed at Follow-up 2, no further drug overdoses were reported.

Table 15. Follow Up 2: Overdose risk factors by gender

	Male (n=51)	Female (n=26)	Total (N=77)
Living alone (%)	12	4	9
Known HCV positive (%)	26	31	26
Current daily smoker (%)	73	65	70
Daily alcohol use (%)	14	0	9
AUDIT Hazardous alcohol use (%)*	29	8	22
AUDIT Harmful alcohol use (%)	24	12	20
CNS depressant use (%)			
Heroin	8	11	9
Benzos	14	15	14
Morphine	8	4	7
Methadone	2	8	4
Physeptone	2	0	1
Buprenorphine	2	12	5
Polydrug use (%)			
Heroin with other drugs	4	12	7
Morphine with other drugs	4	0	3
Heroin/morphine with alcohol	4	4	4
Heroin/morphine with benzos	4	4	4
Injecting risk behaviour (%)			
Injected last 4 weeks	26	19	23
Used syringe after someone [a]	15	20	17
Usually injecting alone	2	4	3
SF-8 MCS significantly ($p < .05$) below mean (%)	12	0	8

[a] among those reporting injection in last 4 weeks

* $p < .05$, ** $p < .01$, *** $p < .001$

Predicting Recidivism

In January 2006 DCS records were examined to identify instances of recidivism among participants, who had at that point spent a median of 340 days in the community (range 122 – 740 days). Data were unavailable for two participants and a further eight had not been released from custody, leaving 150 participants for analysis. At this point, DCS records indicated that 19.4% of participants had been reincarcerated in Queensland.

Table 16 lists some of the demographic and criminogenic factors that may be associated with reincarceration, and which were recorded during pre-release interviews. Those who were reincarcerated were significantly more likely to be male (OR=6.1, 95%CI 1.8-21.2), to have a history of injecting drug use (OR=3.0, 95%CI 1.2-7.9) and to report an expectation, prior to release, that they would use illicit drugs post-release (OR=2.7, 95%CI 1.1-6.3). Although not statistically significant, there was also some evidence of an increased risk of reincarceration for those who had a poorer education (OR=2.2, 95%CI 0.98-4.9) and those who reported drinking alcohol at hazardous or harmful levels prior to incarceration (OR=1.9, 95%CI 0.8-4.3).

Table 16. Pre-release predictors of reincarceration

	Not reincarcerated (n = 119)	Reincarcerated (n = 31)	OR (95% CI)
Gender male (%)	61	90	6.09 (1.75,21.18)
Indigenous (%)	22	29	1.46 (0.60,3.56)
Education <grade 10 (%)	33	52	2.19 (0.98,4.88)
Employed pre-prison (%)	25	42	2.14 (0.94,4.89)
Index offence at Phase 1 drug or property related (%)	50	36	0.56 (0.25,1.27)
SF-8 PCS bottom quartile at Phase 1 (%)	28	16	0.50 (0.18,1.42)
SF-8 MCS bottom quartile at Phase 1 (%)	27	16	0.52 (0.19,1.48)
AUDIT hazardous/harmful at Phase 1	49	65	1.91 (0.84,4.34)
K10 high/very high at Phase 1	29	23	0.70 (0.28,1.77)
Injecting drug use history	58	81	3.02 (1.15,7.91)
Expect alcohol use at Phase 1 (%)	63	71	1.45 (0.62,3.44)
Expect illicit drug use at Phase 1 (%)	48	71	2.66 (1.13,6.25)

Note: DCS recidivism data were obtained on 16 Jan 2006 and were unavailable for two participants, and eight participants were not released, so *n*=150

DISCUSSION AND CONCLUSIONS

The present study used a prospective design to follow a cohort of adult prisoners being released to the community in Queensland, Australia. The study had three main goals:

1. To describe the *patterns* of drug and alcohol use, mental health status and broader socio-economic status of recently released prisoners;
2. To identify the *prevalence* of risk factors for overdose among recently released prisoners;
3. To identify *predictors* of re-incarceration within a six-month period (including pre-incarceration drug use).

Interviews were conducted with 108 male and 52 female prisoners in the weeks prior to their release, with follow-up interviews completed on average one month and four months post-release.

In most respects, the demographic characteristics of the sample were broadly consistent with the overall prison population, although as expected, prisoners serving shorter sentences were over-represented. More than a third had not completed grade 10 at school and most were unemployed prior to incarceration. The majority of males and more than a third of females had been incarcerated previously, and almost half of the female prisoners were living with dependent children prior to coming to prison. Clearly, the sample was disadvantaged in multiple domains. Within this group Indigenous prisoners were particularly disadvantaged, with almost two thirds reporting less than a grade 10 education and only one in five employed prior to incarceration. Consistent with previous studies (Johnson, 2004; Makkai & Payne, 2003), Indigenous prisoners were more likely to be serving time for violent offences and less likely to be serving time for drug or property offences; 84% had been incarcerated previously as an adult, and 41% had been incarcerated as a juvenile. Although previous research in Queensland (DCS, 2002) has found high rates of problem gambling among prisoners (prior to incarceration), only a third of participants reported any recent gambling in prison, and of these around a third reported some degree of gambling problem. Evidently, rates of problem gambling behaviour vary according to opportunity, and are significantly reduced in the more controlled correctional setting.

As expected, the vast majority of prisoners reported a history of both licit and illicit substance use prior to incarceration, with about two thirds reporting a history of injecting drug use. Males were significantly more likely than females to report illicit drug use and to report risky alcohol consumption prior to incarceration, however there was no gender difference in rates of tobacco consumption, with around four in five prisoners reporting being current smokers. Overall, 88% reported a history of cannabis use and the majority also reported past use of amphetamines and hallucinogens. Past use of CNS depressants including heroin, morphine and benzodiazepines was also common. Almost one in five participants reported having experienced a drug overdose at some time in the past and more than one in four reported being Hepatitis C positive. Rates of Hepatitis C seropositivity were higher among those with a history of receiving tattoos in prison, and among those with a history of injecting drug use. While these rates of drug use and drug-related harm are high, they are consistent with previous studies of prisoners in Australia (Butler & Milner, 2003; Hockings et al., 2002; Johnson, 2004; Makkai & Payne, 2003). The most recent and robust estimate of HCV prevalence among prisoners in Australia is 38% (Butler et al., 2005) – higher than in the present sample.

Perhaps not surprisingly, in the weeks prior to release about half of the sample reported at least moderate psychological distress. Scores on the SF-8 indicated that while both male and female prisoners typically considered their physical health to be good, males (and to a lesser extent, females) reported impaired mental health prior to release. Although the majority of participants reported an extensive history of licit and illicit substance use, only 15% reported having completed a substance-related program during their current sentence. Given the high rates of previous incarceration, participants may have completed these programs during previous periods

of imprisonment, however their continued high rates of substance misuse indicate that for many, further intervention may have been beneficial.

One purpose of the present study was to gain a sense of prisoners' plans and expectations as they approached their date of release. Despite the fact that all participants were interviewed within 4 weeks of their expected release date, many had not made firm arrangements regarding accommodation and income, and some had made unsuitable arrangements such as planning to sleep on a friend's or acquaintance's floor. When asked to speculate about what they "realistically" expected to happen post-release, most were quite optimistic about finding some sort of accommodation, however only around half of males and a third of females expected to be employed four weeks post-release. Of the remainder, almost all expected to receive some sort of unemployment benefits or pension upon release.

Despite their often extensive history of substance use, only about half of males and a third of females intended to use illicit drugs post-release, with cannabis and amphetamines the two most commonly nominated drugs. The vast majority planned to continue smoking tobacco post-release, and about two thirds intended to drink alcohol. Interestingly, when challenged to consider what they thought might "realistically" happen post-release, females did not change their expectations regarding substance use, while males were more likely to report expecting to use illicit drugs (particularly cannabis and methamphetamine) and slightly more likely to report expecting to drink alcohol. Given the apparent discrepancy between intentions and 'realistic expectations' among male prisoners, these findings may indicate some degree of impairment of self-efficacy (or ambivalence about substance use) among some male prisoners, which might usefully be targeted in pre-release intervention programs.

Another aim of the present study was to describe the patterns of substance use and disadvantage experienced by prisoners following release from custody. Consistent with their drug use histories, over half of male prisoners and more than a third of female prisoners reported an expectation that they would use illicit drugs post-release, and these expectations were borne out in post-release interviews: Within one month of release from custody about two thirds of male ex-prisoners and one third of female ex-prisoners had used an illicit drug, with cannabis and amphetamines the most commonly used illicit substances. Given the growing evidence of an association between use of these substances and both mental health and behavioural problems (Degenhardt, Hall, & Lynskey, 2001; McKetin, McLaren, & Kelly, 2005; Morefield et al., 2004), this is of some concern.

Not surprisingly, rates of licit drug use were also high post-release, with about four out of five ex-prisoners continuing to smoke tobacco. Prior to release, about two thirds of prisoners reported an expectation that they would drink alcohol post release. Among females this expectation was consistent with their behaviour post-release, however a number of males who had not intended to drink post-release reported doing so, with more than half of male ex-prisoners drinking at hazardous or harmful levels by four months post-release. Clearly, while illicit drug use is a problem for many prisoners, risky alcohol use is also common, particularly for males. Given the association between alcohol use and offending, particularly violent offending (Dowden & Brown, 2002; Makkai & Payne, 2003), there is clearly benefit in endeavouring to reduce alcohol consumption among recently released prisoners.

Prior to release more than one in four prisoners reported high or very high levels of psychological distress, and this proportion changed little following release from custody. Although most participants rated their physical health as good, many reported impaired mental health prior to release, particularly males. Interestingly, while there was little change in the mental health of male prisoners post-release, females reported a decline in mental health at one month post-release, but by four months post-release, their mental health status had returned to baseline levels. Male ex-prisoners reported a rapid decline in physical health post-release, while females typically reported good physical health at one month post-release, but poorer physical health by

four months post-release. Overall, there was evidence of both physical and mental health impairment among ex-prisoners in the sample: Male prisoners in particular reported impaired mental health throughout the study, while both male and female prisoners reported a decline in physical health post-release. While pre-release programs may assist prisoners in preparing for a return to the community, these findings suggest that such programs should be complemented by post-release support, including interventions to sustain or improve physical and mental health.

The second aim of the present study was to explore the patterns and prevalence of hypothesised overdose risk factors among ex-prisoners. A number of data linkage studies in Australia (Darke et al., 2000; Graham, 2003; McGregor et al., 2002; Stewart et al., 2004) and elsewhere (Bird & Hutchinson, 2003; Jones et al., 2002; Seaman et al., 1998; Shewan et al., 2000) have shown that ex-prisoners are at increased risk of mortality post-release, with fatal drug overdose one of the main causes of this increase in risk. Although a number of authors have hypothesised about the reasons for this elevated risk of overdose, this is the first study to prospectively monitor the patterns and prevalence of these hypothesised risk factors, in a sample of ex-prisoners. Although only one participant reported experiencing an overdose during the follow-up period, a much larger number reported engaging in behaviours that might put them at risk of overdose.

It has been argued that smoking-related lung disease and liver dysfunction associated with Hepatitis C may increase the risk of overdose (Warner-Smith, Darke et al., 2001; Warner-Smith, Lynskey, Darke, & Hall, 2001). Consistent with previous studies (Butler et al., 2005; Butler & Milner, 2003; DCS, 2000; Hockings et al., 2002), in the present study more than one in four participants reported being HCV positive and four in five reported being current smokers. Two thirds of the sample reported a history of injecting drug use and almost one in five reported having received a tattoo in prison; each of these risk behaviours was significantly associated with HCV status. In addition to increasing the risk of overdose post-release, these chronic health problems and risk behaviours should themselves be the target of health interventions, both during the period of incarceration and importantly, following release from custody.

At Follow-up 1 almost a third of participants reported injecting a drug in the last four weeks. Of these, just under half reported injecting heroin and a minority reported sharing injecting equipment. Few reported usually injecting alone. By contrast, simultaneous use of multiple CNS depressants – a well-established risk factor for overdose (ANCD, 2003a, 2003b; Coffin et al., 2003; Cook & Davies, 2001; Darke & Hall, 2003; Darke et al., 2000) – was not uncommon: A proportion of both males and females reported using heroin with benzodiazepines (e.g., Valium®), and more than one in ten males reported using heroin with alcohol. These findings point to a need for harm reduction messages for soon-to-be-released prisoners, particularly those with a history of injecting drug use, warning of the risks of combining heroin with other, more readily available CNS depressants.

Another well-established risk factor for overdose is impaired mental health (ANCD, 2003a, 2003b; Galea & Coffin, 2003; Heale et al., 2003; Jones et al., 2002; McGregor et al., 2002; Tobin & Latkin, 2003). As discussed above, a large proportion of participants reported poor mental health and high levels of psychological distress in the weeks prior to release, and also in the weeks and months following release from custody. Indeed, the participant who reported experiencing an overdose prior to Follow-up 1 also reported significantly impaired mental health and high levels of psychological distress prior to release. Irrespective of the established association between poor mental health and drug overdose, the present findings point to unmet need for mental health support and treatment among soon-to-be-released prisoners, and among those who have recently been released into the community.

The final goal of the PREP-Q study was to identify predictors of recidivism within the study sample, with a focus on characteristics which are evident in the weeks prior to release. Consistent with previous research (Gendreau et al., 1996), the rate of recidivism was about six times higher among males than among females, and those who re-offended were three times more likely to

have a history of injecting drug use. Similarly, participants who reported that they expected to use illicit drugs post-release were almost three times more likely to re-offend. The association between drug use and offending is well-established (Bonta et al., 1998; Dowden & Brown, 2002; Gendreau et al., 1996) and as such, these results are not surprising. They nevertheless serve to illustrate both the challenges in supporting integration of ex-prisoners, and the potential for correctional services to support reintegration programs: By and large, those who used illicit drugs or consumed alcohol at risky levels *post-release* were those who had engaged in the same behaviours *prior to incarceration*, and those who reported expecting to use these substances post-release, in the weeks prior to release. Many of the participants in this study were serving short sentences and were therefore ineligible for either substance-related or pre-release support programs, despite the apparent need for this sort of support. Given the well-established association between drug use and re-offending (Dowden & Brown, 2002; Gendreau et al., 1996), which was again evident in the present study, it seems that the provision of appropriate treatment for substance use and mental health problems among prisoners, both prior to release and in the months following release, may be of benefit not only to the prisoner, but also to the society to which he or she is returning.

Summary and Implications

The present study is one of only a few which have prospectively followed a cohort of prisoners from custody into the community. Due to the small sample size the findings of this study can be considered only suggestive, however a number of important issues have been identified. First, despite the availability of health services and a range of treatment programs in the prison setting, there is strong evidence of continuity in the substance-related, mental health and psychosocial problems experienced by this group. There is clearly scope to expand and enhance treatment, support and harm reduction interventions for prisoners and ex-prisoners, should the resources become available. Second, consistent with previous studies addressing the issue of ex-prisoner integration (Baldry et al., 2003; Visher, LaVigne, & Travis, 2004), there remains a large unmet need for support and assistance for recently released prisoners, particularly in the weeks and months immediately following release from custody. Substance use is a significant problem for many ex-prisoners, with risky alcohol consumption particularly common for males, however many ex-prisoners are experiencing problems in multiple domains including impaired physical health and chronic illness, poor mental health and high levels of distress, and chronic social disadvantage and marginalisation. In the absence of appropriate pre-release and post-release support, the evidence shows that many of these individuals will return to prison, often on multiple occasions.

In recent years the concept of 'throughcare' has received increasing attention from researchers and policymakers alike (Borzycki, 2005; Borzycki & Baldry, 2003; Burrows, Clarke, Davison, Tarling, & Webb, 2000), and there is evidence that this principle has been adopted by correctional services in a number of jurisdictions in Australia. In Queensland, the recent introduction of the Transitions pre-release program has assisted some prisoners in preparing for a return to the community, however there is still more that can be done. In particular, a number of authors (Borzycki & Baldry, 2003; Burrows et al., 2000; Graham, 2003; Ogilvie, 2001) have called for pre-release programs of this sort to be complemented by effective, evidence-based post-release programs, designed to assist the individual to integrate back into the community and access appropriate support and treatment. At present, the few post-release programs that do exist for ex-prisoners in Australia are fragmented, often under-funded and usually based on limited evidence. A useful next step in bringing the concept of 'throughcare' into policy and practice would be the development and rigorous evaluation of an integrated post-release support program, building on the pre-release programs already in place, and linking prisoners with the communities to which they will eventually return.

Limitations and Recommendations

This is one of only a small number of studies worldwide to have followed a group of prisoners prospectively, from prior to release from custody, for a period of months post-release. It has provided new insights into the pre-release health, well-being and expectations of male and female prisoners in Australia. It has also provided some preliminary, descriptive data regarding the sorts of post-release challenges faced by adult prisoners. Nevertheless, the study is not without limitations.

Due to resource limitations a relatively small, convenience sample of prisoners was recruited, limiting both the generalisability of the findings and statistical power to identify important group differences. This is particularly the case with the post-release data, which were collected from only a subset of the original sample. The study nevertheless serves as a valuable pilot for future work, and has demonstrated both the feasibility and the value of the method. The findings presented here clearly indicate that further research in this area is warranted.

As expected, there was a considerable degree of sample attrition in post-release interviews, with only 55% of participants successfully completing their second post-release interview. Although considerable, this level of attrition is consistent with other, similar studies (Baldry et al., 2003; Visher et al., 2004), and is a direct consequence of both the instability and chaotic lifestyles of recent ex-prisoners, and the high rate of reincarceration within the study sample. As such, it is likely that the prevalence of poor health and risk behaviours among those interviewed at follow-up under-estimates the prevalence of these problems in the full sample. To the extent that this is the case, the observed associations between pre-release risk factors and post-release outcomes will be an under-estimate of the true association (Najman et al., 2005). The impact of attrition on study outcomes is reduced somewhat by the availability of both pre-release data (allowing for identification of bias in the follow-up sample) and recidivism data from DCS, for all participants. Nevertheless, future studies may be able to improve on this follow-up rate by collecting more comprehensive contact information from participants prior to release from custody, by endeavouring to re-interview in custody participants who have been re-incarcerated, and by making contact with participants earlier, and more regularly, post-release.

As is the case with many studies exploring patterns of illicit behaviour, the present study relied heavily on self-report data. Particularly with respect to socially sanctioned behaviours such as illicit drug use and criminal activity, these reports may under-estimate the true rate in the target population. The reported rate of many of these behaviours was high in the present sample, and any reporting bias would only lead to an under-estimate of the true prevalence. There is no reason to suspect that the level of under-reporting would differ across subsets of the sample, and thus no reason to suspect bias in the group differences reported here.

One possible explanation for the high rate of overdose among ex-prisoners is reduced tolerance, with some ex-prisoners returning to drug use post-release and injecting the same quantity they had used prior to incarceration, despite a period of (relative) abstinence whilst incarcerated. Darke and colleagues (Darke, 2003; Darke & Hall, 2003; Darke & Zador, 1996) have, however, argued that the very term 'overdose' is a misnomer, with tests revealing normal or subnormal blood morphine concentrations in the vast majority of fatal overdose victims. The present study was unable to explore this issue, despite its obvious importance in informing pre-release harm reduction messages for prisoners. One way to test these competing hypotheses regarding the importance of tolerance in fatal overdose among ex-prisoners would be through a data linkage study, matching names of released prisoners with coronial records of fatal drug overdose. A number of data linkage studies involving ex-prisoners have already been undertaken in Australia (Darke et al., 2000; Graham, 2003; McGregor et al., 2002; Stewart et al., 2004), however to date none have reported an analysis of blood morphine concentration. In addition to building on the longitudinal findings from this pilot study, much could be gained from further, in-depth data linkage studies exploring the causes and timing of mortality among ex-prisoners in Australia.

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