

2012

Amphetamines and Western Australian detainees: A social profile

Karen L. Foster
Edith Cowan University

Recommended Citation

Foster, K. L. (2012). *Amphetamines and Western Australian detainees: A social profile*. Retrieved from <http://ro.ecu.edu.au/theses/487>

This Thesis is posted at Research Online.
<http://ro.ecu.edu.au/theses/487>

Edith Cowan University

Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study.

The University does not authorize you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following:

- Copyright owners are entitled to take legal action against persons who infringe their copyright.
- A reproduction of material that is protected by copyright may be a copyright infringement. Where the reproduction of such material is done without attribution of authorship, with false attribution of authorship or the authorship is treated in a derogatory manner, this may be a breach of the author's moral rights contained in Part IX of the Copyright Act 1968 (Cth).
- Courts have the power to impose a wide range of civil and criminal sanctions for infringement of copyright, infringement of moral rights and other offences under the Copyright Act 1968 (Cth). Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

**AMPHETAMINES AND WESTERN AUSTRALIAN DETAINEES: A SOCIAL
PROFILE**

**Karen Lee Foster
Bachelor of Science (Psychology)**

**This thesis is presented in fulfilment of the requirements for the degree of Master of
Criminal Justice**

**Faculty of Business and Law
School of Law and Justice
Edith Cowan University**

August 2012

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

Contents

List of Tables	5
Table of Figures	6
Abstract	7
Declaration	8
Acknowledgements	9
Chapter 1: Introduction	10
Chapter 2: Literature review on amphetamine use historically and its contemporary relevance	14
History of amphetamines	14
Potential harms associated with amphetamine use	16
Amphetamine use, mental health, & violence	18
Prevalence of amphetamine use: domestic and international	20
Drug use monitoring Australia (DUMA) research	24
Summary	30
Chapter 3: Understanding amphetamine related crime.....	31
The research questions.....	35
Chapter 4: Research Design.....	36
Research procedure	37
Participants.....	37
Data collection	38
Data analysis	44
Ethics approval.....	45
Limitations	46
Chapter 5: Results	47
Amphetamine use indicators.....	47
Research question one:	50
Research question two: <i>Demographics</i>	52
Gender.....	53
Age.....	55
Aboriginal or Torres Strait Islander Origin	57
Relationship status	59
Type of residence	60

Education	62
Employment status.....	64
Research question three: <i>Alleged offences</i>	66
Summary	74
Chapter 6: Discussion	77
Research question one: <i>Amphetamine use</i>	77
Research question two: <i>Demographics</i>	81
Gender.....	81
Age.....	82
ATSI origin	86
Relationship status	87
Residential status	88
Education level.....	89
Employment status.....	91
Research question three: <i>Alleged offences</i>	94
Concluding remarks	96
References	99

List of Tables

Table 1 Kendall's tau _b correlations of self-reported and objective measures of amphetamine use amongst WA detainees	48
Table 2 Analysis of WA detainee amphetamine use – objective and self-report indicators ...	51
Table 3 WA Male detainee amphetamine users	53
Table 4 Positive amphetamine urine sample and age	55
Table 5 Self-reported amphetamine use 30 days prior to detainment and age	56
Table 6 Amphetamine use indicators – objective and self-report and ATSI identification.....	58
Table 7 Amphetamine use indicators - objective and self-report and relationship status	59
Table 8 Amphetamine use indicators – objective and self-report and type of residence	61
Table 9 Detainee education level and positive amphetamine urine sample	62
Table 10 Detainee education level and self-reported amphetamine use 30 days prior to detainment.....	63
Table 11 Positive amphetamine urine sample and employment status.....	65
Table 12 Self-reported amphetamine use 30 days prior to detainment and employment status	65
Table 13 Amphetamine use indicators and types of offences committed, as per ASOC classification	67
Table 14 ASOC offences commonly committed by a sample of WA amphetamine-using and amphetamine non-using detainees (1999-2006).....	70
Table 15 Amphetamine use indicators and types of offences committed, as per modified ASOC classification.....	72
Table 16 The National Drugs Strategy Household Survey overview: used an amphetamine substance at least once.....	82

Table of Figures

Figure 1 Goldstein's Conceptual Framework (1985).....31

Figure 2 Amphetamine use indicators over time - objective and self-report indicators.....50

Abstract

The current study utilised data collected from the Australian Institute of Criminology's project known as Drug Use Monitoring in Australia (DUMA). The DUMA project examined detainees' social demographics and past and present drug use, at various Australian sites.

The current study examined secondary data as a subset of the DUMA data collected from the East Perth lockup in Western Australia. Three sections of the DUMA data were analysed in this study (i) changes in amphetamine use by detainees (ii) demographic profile of detained amphetamine users and (iii) offences for which they have been detained. Analyses included chi-square tests, Kendall's tau_b, ANOVA, and descriptive statistics, which were used in order to ascertain if a change between the three main sections had occurred overtime (1999-2006). Results showed detainees' amphetamine use increased during the 'heroin drought'.

The profile demographic of detainee amphetamine users showed some significant changes overtime; a majority were male, aged between 18 to 34 years, and most likely to be unemployed. The study also showed detainee amphetamine users were most likely to commit offences against property, rather than offences against a person. Recommendations include detainees be offered drug counselling where appropriate and have access to resources assisting with gaining long-term employment.

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education.
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
- (iii) contain any defamatory material

I also grant permission for the Library at Edith Cowan University to make duplicate copies of my thesis as required.

Signature:

Date:

Acknowledgements

Firstly, thanks go to my parents (Michael & Barbara), for always supporting my university education and being a constant source of support and encouragement. Thanks go to my sisters (Nicole & Kylie), for always just being there and reminding me of the bigger picture. However, this thesis would not have been possible without the persistent and continued efforts of both my supervisors. I was very fortunate to have both Dr Ann-Claire Larsen and Natalie Gately supervising my work and guiding me through the process. Along with their combined expertise and unwavering support, their constant positive outlook and encouragement contributed to the completion of this work, thank you both so much. I would also like to thank Robyn Morris for her excellent assistance and statistical knowledge. Also, big thanks to Melissa Lackner, who motivated me and made this all the more fun.

Chapter 1: Introduction

Many people rely on amphetamines for recreational use as their immediate effects are pleasurable (Bennett & Holloway, 2006). However, amphetamine use has also been associated with criminal behaviour and related anti-social activities (Bennett & Holloway, 2006). Prolonged amphetamine use, moreover, may also be associated with a user developing dependence on the drug, and occasionally, dependent users are unable to sustain education or employment (Bennett & Holloway). Warnings as to the potential harmful physical, legal and psychological effects of amphetamine use are ignored often with serious consequences for users, their families and the wider community. Much research suggested ongoing amphetamine use is physically devastating to the human body and destructive to society. Illicit drugs have exhausted police resources, welfare agencies and community resources (Ryder, Salmon, & Walker, 2001; Kalat, 2001; American Psychiatric Association, 2000; Bennett & Holloway).

Amphetamines are broadly classified as a group of stimulant drugs that disrupt the central nervous system, and alter cognitive and physical functioning (Ryder, Salmon, & Walker, 2001). Typically, users experience positive effects including feelings of well-being, increased alertness, decreased appetite, and increased libido as well as aggression, increased heart rate, and psychosis (Bennett & Holloway, 2006). Amphetamines are obtained either illegally, having been imported or manufactured in clandestine laboratories, or legally bought as prescribed medications for various conditions. Disorders such as Attention Deficit Disorder (ADD), Narcolepsy, and obesity have been treated with amphetamine-based substances. Also, amphetamine use has the potential to have a significant impact on the central nervous system, producing psychoactive and sympathomimetic effects (American Psychiatric Association, 2000). Sympathomimetic drugs mimic the effects of the natural

hormone epinephrine, also known as adrenaline, by increasing heart rate and blood pressure (Kalat, 2001).

Following an amphetamine binge, a user may experience a short-lived intoxication episode (Mikami et al., 2003). Amphetamine use has been associated with violent and aggressive behaviour, particularly if the drug has been administered intravenously, as the effect of the drug is delivered almost instantaneously to the brain (Mikami et al.). Furthermore, users may experience momentary anxiety or panic attacks (American Psychiatric Association, 2000). Feelings of paranoia and psychotic occurrences are also common effects (Mikami et al.). The prolonged, regular use of amphetamines may trigger violent and aggressive behaviours as the drug distorts a person's mood and may induce a pre-existing mental disorder, such as schizophrenia (Mikami et al.). Amphetamines have also been associated with other detrimental effects, such as high blood pressure and heart palpitations (Singer, Mirhej, Santelices, & Hastings, 2006).

Regular use of amphetamines may lead to dependence. Dependence refers to a "state where the individual misses whatever it is they are dependent upon in its absence" (Ryder, Salmon, & Walker, 2001, p. 280). Dependent users may under-take extreme measures to obtain the drug, such as committing theft when employment is difficult to sustain, or the user may not have access to financial means. If a dependent user is unable to obtain the drugs required, they might experience withdrawal symptoms. Withdrawal symptoms occur when the body stops receiving the drug, and begins to return to its normal non-drug affected state, with possible mental and physical discomfort. Regular amphetamine use can also diminish neurotransmitters, and deplete the body of minerals, vitamins and sleep (Kalat, 2001).

When a person withdraws from an amphetamine, they might behave violently or experience psychotic episodes similar to schizophrenia (Mikami et al., 2003). These behaviours are typically detrimental to an individual's health, destructive to social

relationships (breakdown in family and social life), and increase the likelihood of criminal behaviour (American Psychiatric Association, 2000). Amphetamine withdrawal symptoms typically include hunger, fatigue, anxiety, distress, irritability, and depression and sleep disruption (American Psychiatric Association).

Given the potential damage amphetamine use may cause, this study examined trends in amphetamine use by a sample of Western Australian detainees, who passed through the East Perth lock-up between 1999 and 2006. It also analysed the demographic profiles of detainees who had used amphetamines. Lastly, the study identified the types of offences allegedly committed by detainees who had used amphetamines prior to their detention with those of detainees who had not consumed amphetamines. The study analysed secondary data obtained by the Australian Institute of Criminology from the Drug Use Monitoring Australia program (DUMA). DUMA data were transformed into a format for analysis using the Statistical Package for the Social Sciences (SPSS). Finally this research suggested measures needed to address amphetamine use among detainees.

The study is divided into six chapters. Chapter Two overviewed first, the history of amphetamines, how amphetamines are used contemporarily, and potential harms associated with amphetamine use. Second, the prevalence of amphetamine use in Australia and globally, and its association with criminal behaviour are discussed. Finally, the relevance of Drug Use Monitoring Australia program (DUMA) is explained. Chapter Three introduces Goldstein's conceptual framework that guided this research. This framework categorised crimes into three main types: psychopharmacological crimes, economic compulsive crimes and systemic violent crimes.

Chapter Four outlines the study's research design, describing its procedures, participants, data collection, analysis and ethical considerations. The study's limitations are also discussed. Chapter Five presents the results of the study in three sections. Each section

addresses the three research questions under investigation. Chapter six discusses the findings from current study and how they related to the literature on amphetamine use. Concluding comments are made as to the effects of amphetamine use on the wider community, and the need for drug counselling and other services being made available to detainees once released from the lock-up is discussed.

Chapter 2: Literature review on amphetamine use historically and its contemporary relevance

History of amphetamines

This section explores the history of amphetamines and how their use became problematic in Australia and internationally. Doing so provides the necessary historical and social context for the current study. One of the components of an amphetamine is a naturally-derived substance, originating from the Ephedra plant, with ephedrine being the active property (Benzedrine is the synthetic version) (Ryder, Salmon, & Walker, 2001). In the late 1920s, ephedrine was used to treat asthma symptoms. Its stimulant aspects became, however, popular with the wider non-therapeutic population. In 1929, a biochemist named Gordon Alles developed and produced an ephedrine substitute (Rasmussen, 2008). The substitute was beta-phenylisopropylamine or amphetamine and intended to be used as a decongestant and bronchodilator (Rasmussen, 2008). In 1933, the pharmaceutical company Smith, Kline and French patented the base form of amphetamine (Rasmussen). The drug, administered via a nasal inhaler, was reputed to unblock nasal congestion and alleviate rhinitis, and was promoted as a Benzedrine Inhaler (Murray, 1998). It contained 325 mg of oily amphetamine base enclosed in a tube and enjoyed widespread success. Extensive advertising undertaken by pharmaceutical companies perpetuated demand for the drug (Rasmussen).

The demand for the stimulant properties of ephedrine substances peaked during World War II, when both Japanese and American armies distributed Benzedrine pills to keep soldiers awake and alert (Rodriquez, Katz, Webb, & Schaefer, 2005). Long before, in 1893, the Japanese had synthesised methamphetamine to enhance endurance and stamina as its effects and potency lasted longer than amphetamine (Lineberry & Bostwick, 2006). After widespread appreciation of its stimulant characteristics by the military, amphetamine use spilled over into civilian populations. The American military also viewed the drug as an aid

for combat, regularly supplying soldiers with the drug to enhance stamina for conflict, as did Canadian, English and German armies (Murray, 1998). The American military provided their troops with amphetamines for both the Korean and Vietnam wars (Rodriquez et al.).

Likewise, Japanese troops were issued with methamphetamine to suppress fatigue and promote endurance. Concurrently the Japanese government supplied civilian factories with the stimulant substance to increase output of war-related items (Murray).

After the turbulent war period, amphetamine use had become widespread (Murray, 1998). In Japan, large quantities of remaining Amphetamines (methamphetamine included) were leftover from World War II. These substances became available to the Japanese public, resulting in widespread use. Consequently, most countries placed restrictions on the sale of the drug by legislative means to stem the amphetamine epidemic. Amphetamines were stringently restricted to the medical field by practitioner dispensing (Murray). The USA reported the first amphetamine epidemic in the 1970s, with major complaints relating to antisocial behaviour, aggression and cardiovascular troubles (Ryder, Salmon, & Walker, 2001).

Methamphetamine is similar to amphetamine, both in structure and effect (Singer et al., 2006). The addition of the methyl to methamphetamine increases the duration of effects and potency because of the enhanced solubility of the drug, allowing it to penetrate the blood-brain barrier more readily (Lineberry & Bostwick, 2006; Singer et al.). Different forms of methamphetamine are available to drug users seeking a stimulant drug. Powder methamphetamine typically combined low-grade methamphetamine with glucose (Ryder, Salmon, & Walker, 2001). The powder form of the drug was snorted, injected or swallowed. Base amphetamine refers to the methamphetamine compound that can be oily or damp and commonly injected; this form is usually of a higher purity than powder methamphetamine (McKetin, McLaren, & Kelly, 2005). Crystal methamphetamine was the most pure form of

amphetamine and considered the most potent. It comes in the form of a crystallised substance, which can be snorted or injected and has a purity level estimated at 80% (McKetin et al.).

Methamphetamine was also produced in tablet form, but generally had a lower purity. Ketamine may be added to the substance, as the pills were originally aimed at ecstasy rather than methamphetamine users (McKetin, McLaren, Kelly). McCormack and Buckley (2006) suggested approximately 80% of ecstasy is methamphetamine, with illegal manufacturers adding ketamine to the mix as it imitates the effects of methylenedioxymethamphetamine (MDMA or ecstasy). Psycho-stimulant users were typically oblivious to what drugs they were taking.

Potential harms associated with amphetamine use

Stimulant properties of amphetamines increase the levels of the collective group of monoamine neurotransmitters (noradrenaline, dopamine and serotonin) (McCormack & Buckley, 2006). Increased levels of dopamine elevate the heart rate and blood pressure. Dopamine assists with repetitive tasks and is the working component in the gratification system of the brain (Kalat, 2001). Amphetamine chemicals increase dopamine synapses at the presynaptic terminal, as the drug reverses the dopamine transporters (protein) and prohibits the absorption of dopamine by the protein (Kalat).

Amphetamine use increases levels of dopamine and can result in increased levels of euphoria or 'high' feelings, delight and satisfaction, giving rise to increased drug-taking behaviour (Kalat, 2001; Ray-Mihn, 2006). Dopamine is not released as often, once amphetamine use becomes a regular activity and the transmitter dynorphin replaces it, which counteracts the effects of the stimulant drug (Kalat). Thus, a user will typically increase the

amount of the chosen drug to mimic the 'high' (Bennett & Holloway, 2006; American Psychiatric Association, 2000).

The long-term effects of using Amphetamines directly relate to the stimulant aspect of the drug. As previously stated, the acute effects of taking an amphetamine are feelings of energy, confidence, wellbeing, decreased fatigue and an ability to concentrate (Lineberry & Bostwick, 2006). With regular use, however, a person may have decreased energy, be unable to focus on tasks, become unproductive, violent and aggressive and experience mood distortion especially when the drug induces or exacerbates a pre-existing mental disorder (Singer, Mirhej, Santelices, & Hastings, 2006). Chronic users generally appear older in appearance. Chemicals used in the drug seep out of the skin causing irritations referred to as 'meth bugs'. 'Meth bugs' often cause users to scratch their skin excessively, leaving unsightly sores (Singer et al.).

Dental hygiene is also jeopardised with regular use of Amphetamines. The user suffers from 'meth mouth', which regular snorting and smoking of the drug causes. Saliva production is decreased and the mouth becomes dry, encouraging bacteria growth and advanced tooth decay (Ray-Mihn, 2006). A dry mouth typically causes cravings for sugar and caffeine, which exacerbates the deterioration in the mouth cavity, resulting in the potential loss of teeth and damaged gums (Ray-Mihn).

Vital organs can also be adversely affected by long-term amphetamine use, particularly the cardiovascular system (Kaye & McKetin, 2005). With amphetamine use, the level of catecholamine increases in the branch of the peripheral nervous system, which controls heart rate and blood pressure. Increased catecholamine levels may cause cardio toxicity by narrowing and contracting the blood vessels, increasing heart and blood pressure rates and potentially causing heart muscle death (Kaye & McKetin).

Levels of amphetamine toxicity are particular to each individual's level of the drug tolerance (Kaye & McKetin, 2005). Some research has suggested frequent high doses of the drug (injecting and snorting) correlate to an increased risk of cardio toxicity that can be exacerbated when amphetamine use is combined with alcohol or cocaine (Kaye & McKetin). Amphetamine use may also unmask or worsen a pre-existing cardiac pathology problem, such as cardiomyopathy (heart loses ability to pump blood) (Kaye & McKetin).

Amphetamine use, mental health, and violence

As mentioned earlier, regular heavy use of amphetamines has the potential to induce serious mental issues, such as a psychosis. Psychosis is a mental state where a person experiences hallucinations (auditory and visual) and paranoid behaviour (McKetin, McLaren, & Kelly, 2005). McKetin et al. found from a sample of non-detained Sydney methamphetamine users, one in five users had experienced a psychosis in the past year. A psychotic state can lead amphetamine users to have exaggerated suspicious feelings about people around him or her, confusion and displaced thought, agitation, rapid speech, and irrational behaviour (McKetin et al.).

Furthermore amphetamine users may have a propensity to act violently, as he or she generally is more aroused and energetic (Mikami et al., 2003). The symptoms of schizophrenia have been compared to that of an amphetamine psychosis. Consequently, researchers examining the link between schizophrenia and amphetamine use found amphetamine users to be more vulnerable than non- amphetamine users to experiencing a schizophrenic disorder (Mikami et al.). Drug users who experience an amphetamine psychosis typically display symptoms of schizophrenia, with a few progressing into a schizophrenic disorder (Mikami et al., 2003). Symptoms of schizophrenia include hostile behaviour, suspiciousness and hallucinations, emotional withdrawal and diminished motor

skills (Mikami et al.). Psychotic symptoms can last for several months after the initial psychosis, leading researchers to suggest a link between reoccurring symptoms and an amphetamine user's predisposition to schizophrenia (Mikami et al.).

Riddell et al. (2006) examined amphetamine psychosis and the relationship between amphetamine use, crime and psychiatric disorders among 888 prisoners in New South Wales (NSW). Compared to non-amphetamine-using prisoners, the Mental Health Survey found the majority of amphetamine-using prisoners had been admitted to a psychiatric facility. Amphetamine users were also more likely to be diagnosed with a psychiatric disorder compared to non-amphetamine using prisoners. Amphetamine-using prisoners were more likely to have experienced a psychosis, as reported by the Mental Health Survey (Riddell et al.). Riddell et al. further reported amphetamine-using prisoners were more likely to have experienced episodes of depression and anxiety.

Sommers and Baskin (2006) interviewed 205 non-detained amphetamine-using male and female participants in the Los Angeles County, exploring drug use patterns and incidents of violence. Participants were all aged between 19 and 40 years, unemployed and Caucasian. Common reasons given for methamphetamine use were increased stamina, mental and physical strength for males and weight loss for females (Sommers & Baskin).

Sommers and Baskin (2006) found 26.8% (55 people: 36 male, 19 female) of the total sample had committed a violent act while intoxicated with methamphetamine. A further 20 of the 55 had never committed a violent act before the methamphetamine-related incident. Approximately 80 separate violent acts were reported, with 51.4% of violent incidences committed in a domestic setting (Sommers & Baskin). This study also found methamphetamine users were less likely to be involved in street gang networks; but, were more likely than non-users to engage in random violent acts in the workplace, home or social situations. Results also showed male methamphetamine users were more likely than females

to have social functioning issues. Sommers and Baskin concluded that methamphetamine is associated with the likelihood of violent uncontrollable behaviour in both males and females.

Prevalence of amphetamine use: domestic and international

Australia's official drug policy began in 1985 and aims to reduce both the supply, demand, and harm for illicit drugs (Department of Health and Ageing). Since 1997, approximately \$1 billion dollars were allocated to curbing the supply and demand of illicit drugs (Department of Health and Ageing). The National Drug Strategy incorporates three major features: supply reduction, demand reduction and harm reduction. Each feature focuses on Australia's drug problem on a multi-faceted level (Department of Health and Ageing). Supply reduction involves stemming the flow of drugs into society, particularly from overseas sources (Department of Health and Ageing). Initiatives include random searches by customs officers at airports, shipping ports and x-raying cargo shipment containers (Keelty, 2005).

An increase in the demand for amphetamines occurred around the time when Australia experienced a 'heroin drought'. This saw a decrease in the purity of heroin, a significant price rise and a lack of available heroin. The heroin drought and significant price rise forced drug users to look for a more affordable drug, leading to the flood of amphetamines onto the Australian drug scene (Degenhardt, Conroy, Gilmour & Hall, 2005). Typically, amphetamines are manufactured in residential settings, with ingredients easily obtained from over-the-counter sources such as flu tablets (pseudoephedrine and ephedrine). Thus, amphetamines were a cheaper and more readily available option (Caldicott, Pigou, Beattie, & Edwards, 2005).

The National Drug Strategy, therefore responded to the relatively simple technique required to manufacture amphetamines and the increased demand for the drug (Department of

Health and Ageing, 2007). The Australian National Drug Policy subsequently aimed to disrupt drug syndicates and the flow of illicit substances into society.

Demand reduction referred to the decreased demand for illicit drugs and discouraging people from experimenting with drug use. Initiatives for this strategy include drug-education awareness campaigns and school curriculum-based programs (Ryder, Salmon, & Walker, 2001). Harm reduction referred to decreasing the harm associated with using drugs. The strategy was reactive, as it acknowledged that drug use occurs but that harm should be minimised (Ryder et al.). Harm reduction strategies included, for example, providing clean syringes and needles to drug injectors and methadone maintenance program (Ryder et al.).

Similarly, the Australian Illicit Drug Reporting System (IDRS) highlighted the importance of a drug culture and its determinants of time and place (Rasdien, 2006). The IDRS survey revealed that WA drug users spent more time using methamphetamine than other Australians, averaging of 32.5 days compared to the national average of 24 days (Rasdien). Rasdien found WA drug injectors favoured amphetamines when compared to injectors in other States. In addition, WA recorded 76% (second highest nation-wide) of intravenous drug users IDUs injecting crystal methamphetamine, and 66% of WA injectors used amphetamines, compared to the national average of 56% (Rasdien). The National Drug Research Institute attributed amphetamine use to the lack of available heroin and ecstasy, which differed from the Australian Eastern States' experience (Rasdien). These statistics could suggest drug use and the drug market are relatively elastic in the sense of price and availability.

The 2004 National Drug Strategy Household Survey (NDSHS) reported 0.7 % of 12-15 year olds, 3.0% of 16-17 year olds, 8.8% of 18-19 year olds had recently used amphetamines (12 months prior to survey) (Australian Institute of Health & Welfare, 2005). The survey also found that males (1.5 million males) were more likely than females (one

million) to have ever used an illicit drug in 2004. NDSHS survey did not, however, differentiate between amphetamines and methamphetamines. Instead, these drugs are grouped together. Ray-Mihn (2006) identified people who regularly go to parties and raves, and aged between 20 and 29 years, gay males and people working long shifts requiring extensive energy as the primary consumers of methamphetamine.

McKetin, McLaren, and Kelly (2005) explored 310 regular non-detained methamphetamine users in Sydney. The study involved interviews with methamphetamine users and dealers, and law enforcement officials and health workers. McKetin et al. reported amphetamines were distributed via already-established heroin networks, with outlaw motorcycle gang members playing a pivotal role in supplying domestic stocks. Amphetamine users mostly obtained drugs through their social interactions or by word-of-mouth. Typically, users did not produce methamphetamine but knew someone who did. Another 14% of users reported participating in sourcing precursor material or the transportation of wholesale material.

McKetin, McLaren, and Kelly (2005) further explored the offences of methamphetamine users' by investigating the patterns of drug usage and dealing behaviour. Research found regular users of methamphetamine were likely to deal in illicit drugs. Approximately one in five users admitted dealing the drug at least once a month for the previous year (McKetin et al). Profit was estimated at approximately AUD\$400 a week. Some users perceived their dealing as a 'normal' occupation, with profit being the reward. Employment was reported as being rather fluid in the drug market, as dealers could move in and out of the market with the aid of another dealers' reputation (McKetin et al).

In addition, McKetin, McLaren, and Kelly (2005) found people who generally used methamphetamine were young adults, receiving a government benefit and working at a semi-skilled level, living in shared accommodation and earning less than their non-using Sydney

counterparts. McKetin et al. also found one in five participants earned additional income by illegal means, primarily from property crime. It was further noted approximately half of all users were dependent on methamphetamine. Users also tended to inject the drug and preferred methamphetamine (McKetin et al.).

Johnson (2004) also examined drug use and offending patterns of incarcerated females in Australian prisons. The study was part of a government initiative entitled Drug Use Careers of Offenders (DUCO) to quantify the level of drug use (licit and illicit) among the incarcerated population of Australia. Johnson focused on women and their drug use patterns prior to incarceration; their personal background and the factors that gave rise to their drug use and offending careers. The study revolved around self-reports of the incarcerated female population. The DUCO project had previously interviewed incarcerated males and more recently a sample of the incarcerated juvenile population. Approximately 470 female prisoners took part in the study, and it was found illicit drug use by incarcerated female offenders in Australia was high, with approximately 80% of female offenders having at least tried an illicit substance once in their life. A reported 66% of offenders had used an illicit substance in the six months prior to incarceration. A further 62% of female offenders were regular users of an illicit substance at the time of their arrest (Johnson, 2004).

Johnson (2004) found female prisoners were more likely to be under the age of 30 years (40%). Approximately 43% were single, 10% were married and 23% disclosed a de-facto relationship. Education levels of the sample were lower than the national average, with 23% of all offenders having only a primary school education (approximately 109 females) (Johnson). An extra 23% of all offenders had completed schooling to a Year 10 level. Only 10% had completed university education. The average school leaving age of female offenders was 15.6 years. In addition, another 30% lived in public housing and 5% on the street, 58%

rented or owned a house or apartment preceding incarceration. A further 71% of all female offenders had children (Johnson).

Johnson (2004) found in the DUCO study a considerable overlap between property crimes and drug offences. Approximately 18% of all crimes committed by the female prisoners were fraudulent activities. A further 60% of females who repeatedly traded in stolen goods also were repeat drug traffickers. Another 71% of violent female offenders were involved in buying drugs. Those committing property crimes (except fraud) tended, however, to be more active in buying and selling illicit substances when compared to violent offenders (Johnson).

In addition, the research generated from Johnson's (2004) DUCO study of incarcerated female offenders showed a large number of women used an illicit drug. Approximately 31% of females were intoxicated at the time of their offence. Amphetamines were one of the most commonly used drugs at the time of the offence. Amphetamine use was associated with crimes of burglary (30%), robbery (35%), driving felonies (35%) and drug offences (28%) (Johnson). The general reason given for property offences was the need for money to purchase illicit substances (52% of the time). The second most common reason for an offence was the offender's drug-intoxicated behaviour (44% of the time). Johnson also found 33% of females who used amphetamines also nominated property criminal offences as their main illegal activities.

Drug use monitoring Australia (DUMA) research

Illicit drug use in Australia is a reoccurring issue within the criminal justice system, with many offenders re-offending with similar crimes (Lineberry & Bostwick, 2006). This section examined existing programs that have quantified drug use by detainees and offenders

in both Australia and overseas. These programs provide a snapshot of drug use among detainees and monitor trends.

Projects similar to DUMA included the New English and Welsh Arrestee Drug Abuse Monitoring (NEW-ADAM) that developed a snapshot of drug using behaviours and the crime nexus by interviewing arrested participants throughout the United Kingdom and Wales (Bennett & Holloway, 2006). This program lasted three years and took samples from 16 custody sites. Only participants over the age of 17 years were eligible to participate. Males and females were included, but people who had been arrested for drunken behaviour offences were excluded (Bennett & Holloway). In total, 4645 arrestees took part in the Bennett and Holloway study. A majority of participants were males (86%) and aged more than 25 years (50%), and 80% of all participants were Caucasian. A further 47% of detainees disclosed that they had used one or more illicit substances in the 12 months prior to their arrest

Both the DUMA and NEW-ADAM programs relied on self-reported data where arrestees were interviewed using a structured survey with questions about illicit substance use; criminal behaviour while intoxicated with a drug; drug use in the preceding 12 months, 30 days and three days prior to the criminal offence; and lifetime criminal careers (Bennett & Holloway, 2006). It was found 60% of detainees, who had used illicit drugs and admitted offending, believed their drug use and offences were in some way connected. Older detainees and Caucasian detainees more readily attributed their offences to drug use. Furthermore, females were more likely to agree that their drug use was linked with their criminal offences when compared to male detainees (Bennett & Holloway). Approximately 80% of the NEW-ADAM detainees cited the need to acquire more drugs and money as the main reason for committing crime, followed closely by the explanation that their judgment was impaired, and thirdly, a previous crime aided the purchase of drugs as cash was available (Bennett & Holloway). Responses by male and female detainees tended to diverge when attributing drug

use to crime. Males were more likely to concede that they committed criminal offences while their judgment was impaired by drug use, whereas female detainees admitted committing crimes to fund their drug habit (Bennett & Holloway, 2006).

Similarly, differences existed between older and younger participants. Older participants tended to report their criminal offences were due to a lack of money to purchase drugs; whereas younger participants tended to attribute criminal behaviour to previous crimes committed. Additionally, the type of illicit drug consumed changed the participant's perception about the drug-crime nexus. For example, participants who admitted using amphetamines were more likely to report the relationship between drugs and crime was due to an impaired judgment as opposed to a lack of money to obtain illicit drugs (Bennett & Holloway, 2006).

In keeping with NEW-ADAM and SANDAG, San Diego, California, also encompasses an illicit drug surveillance program. Mexico is a major manufacturer of amphetamines (Pollini & Strathdee, 2007). Due to the close proximity to Mexican border, there is a major need for a program to monitor amphetamine use in California. The Californian program, the San Diego Association of Governments' (SANDAG) Substance Abuse Monitoring (SAM), collected drug-use information from detainees within the first 48 hours of their arrest (Pollini & Strathdee). The main results generated from the SANDAG SAM program, relevant to the current study, were the increased use of methamphetamine between 2001 and 2005. This was accompanied by the high prevalence of female detainees (51%) who tested positive for methamphetamine in 2005, as opposed to 37% of females in 2007 (Pollini & Strathdee). The high amphetamine use by females suggested illicit drug use was not confined to male detainees.

Similarly, Burke (2007) also examined the San Diego site. In 2005, adult detainees completed 808 interviews, with male and female detainees aged over 18 years. In the first 48

hours, 527 males and 281 females were interviewed. Approximately 39% of detainees were arrested for drug-related crimes. Another 335 admitted using methamphetamines in the preceding 30 days. When compared to other detainees from the same site, methamphetamine-using detainees were less likely to have a stable residence, more likely to live with a child and at some point in their life likely to have been arrested for a violent offence (Burke). In addition, detainees were mostly to be unemployed and had some form of criminal history and at the time of offence had a pending drug charge (Burke, 2007). Furthermore, detainees also reported an early history of drug use and with at least one parent/caregiver using drugs. This specific group of detainees were also more likely to report a previous offence related to property (known to law enforcement or not), primarily a shoplifting offence (Burke). In addition, 44% of detainees who used methamphetamine on a regular basis admitted being involved in at least one aspect of methamphetamine production.

Burke (2007) also found 75% of detainees who reported methamphetamine use preferred to smoke the drug. Smoking methamphetamine generally delivers an intense stimulant effect to the body (Saferstein, 2004). In addition, methamphetamine-using detainees admitted using the drug at least four times a day in a consecutive row in the 30 days prior to arrest.

A similar version of both the Californian-ADAM and DUMA programs was conducted in Sweden with a sample of the general non-detained Swedish population. Byqvist (2006) found females used amphetamines more frequently than males. Older females (above the age of 24) were more likely to use Amphetamines compared to younger women. This was also similar for males, who preferred to use amphetamine. Byqvist also reported males were more likely to use more than one drug at a single time, with the primary combination being amphetamines and cannabis. Females who combined illicit drugs preferred to use

amphetamine and opiates. Furthermore, it was more common for females than males to use Amphetamines as their primary drug.

The social demographics Byqvist examined (2006) suggested drug users lived primarily on the outskirts of society and were not regular work force participants. Approximately 77% of females reported an unsatisfactory employment position or had no job at all, and this was similar for 73% of males. A further 3% of males and females reported a very satisfactory employment situation. Most users were not employed and relied on illegal sources of income. Another 37% of males supported themselves financially from illegal activities.

In addition, the Stockholm research site indicated that younger females (under 24 years) had the highest number of prior criminal convictions (Byqvist, 2006). For a majority of this sample (40%) income was obtained by illegal means. Males aged between 25 and 34 years, however, had the most extensive criminal history. Other sources of income aside from illegal means came from government benefits. A social allowance appeared to be the most common form of income for drug users, followed by sickness benefits. In addition, 80% of participants at the Stockholm site reported receiving some sort of benefit from a government source (Byqvist).

Furthermore, Byqvist (2006) noted both genders tended to report satisfactory living conditions (approximately 54% of females and 49% of males). In addition, younger drug-using females were likely to report a better housing situation than females of an older age. Byqvist considered this could suggest younger drug-using females tended to be still living at home. Approximately 16% of females and 19% of males reported no fixed address.

Daniulaityte, Carlson, and Kenne (2007) also examined amphetamine use, primarily methamphetamine use, among drug-using detainees from the Dayton area in Ohio. The Ohio Substance Abuse Monitoring Network engaged participants who had used methamphetamine

in the past 12 months. This program was aimed at monitoring drug use patterns across Ohio. The age of the predominantly male population ranged from 21 to 57 years, with interviews being the primary source of information gathering. The results reported by Daniulaityte et al. found methamphetamine users were more likely to call their dealer to arrange a meeting at a public place in order to buy drugs. Approximately half of all participants began using methamphetamine in adolescence, with most participants having an extensive drug use history prior to being detained. Most participants used methamphetamine via smoking or snorting.

Daniulaityte, Carlson, and Kenne (2007) further examined the potential risks that accompanied methamphetamine use as reported by users. Participants reported the consequences of methamphetamine use were the loss of financial means, social status, and relationships, along with serious health-related issues and a worsening physical appearance. Along with poor dental hygiene amphetamine use caused weight loss and skin irritations. Daniulaityte, et al. suggested participants were aware of the dangers of drug use but continued regardless of the potential consequences, as methamphetamine is a powerful drug, with the benefits of use outweighing the consequences.

Combined existing studies suggested the use of amphetamine is an international issue, and did not appear to be diminishing. Studies (Daniulaityte, Carlson, & Kenne, 2007; Byqvist, 2006; Burke, 2007; Pollini & Strathdee, 2007) found amphetamines were primarily used by males, though use by females use appeared to be increasing. Most participants in these studies were under 30 years and reported having recent use prior to participating in the study. In addition, detainees commonly attributed their criminal behaviour to amphetamine use and other destructive consequences, such as unemployment and adverse health.

Summary

The problems associated with amphetamine use have been well documented. Amphetamine use impacts on physical health, with long term use associated with irreversible side effects including deterioration of the mouth and teeth, damage to vital organs and cardiovascular system. Furthermore, amphetamine use has been associated with psychosis and schizophrenia, has been linked to violent behaviour and long term mental health conditions. Given potential problems for further harms associated with amphetamine use, the DUMA project was instituted as Australia's bid to amass information about detainees who had used illicit drugs prior to their detention.

Chapter 3: Understanding amphetamine related crime

A significant amount of time and resources has been allocated to enforcing drug laws. These laws are in place to protect both users and the wider society from the harms associated with illicit drug use (Boyum & Kleiman, 2003). This chapter introduces Goldstein’s (1985) triparted model of the drug/crime nexus. Goldstein (1985) explored the types of crimes associated with drug use, and the interaction between key players in the illicit drug market, as seen by Figure 1. Goldstein developed the theory to understand the drug/crime nexus, and explain the predominant types of crimes committed by drug-using offenders. The model incorporated three main types of crime: psychopharmacological crime; economic compulsive crime; and systematic violent crime (Goldstein).

	Psychopharmacologic Crime			Economic Compulsive Crime			Systematic Violent Crime	
	Short-lived, excitable or irrational behaviour.			Need to steal to support a drug habit.			Violence against others who pose a real/imagined threat.	

Figure 1. Goldstein's Conceptual Framework (1985)

According to Goldstein (1985) the first type of crime is *psychopharmacological* driven crime referred to short-term or long-term illicit substance use, which impinges on a person’s behaviour by encouraging excitable, irrational and violent behaviour. Drugs that have the capacity to produce erratic behaviour typically are stimulants such as amphetamines and cocaine.

Economic compulsive crimes referred to those crimes committed to obtain money to sustain illicit drug use. Specifically, violent economic crime referred to robberies and armed hold-ups. Goldstein noted this type of crime was perpetuated by the illicit drug user’s

desperate need to attain the drug. The environment in which the crime occurs, the victim's reaction and the confidence level of the offender may contribute to a user's violent behaviour at the crime scene.

The third type of drug-use offence as described by Goldstein (1985) is *systemic violence*, which referred to the offender's central need to use violence against others typically rival drug dealers who pose a threat. Those involved in drug distribution have an increased chance of being a perpetrator or a victim of violence. This position was based on the nature of criminal activities related to systemic violence, as violence is the key to sustaining a drug dealer's position and survival on the black-market. Goldstein also suggested drug use could have a reverse effect on violent drug users, as the pharmacological components of some drugs (depressant drugs, such as opiates) may help minimise violent behaviours.

Although Goldstein (1985) drew upon the significance of violence in drug distribution, other research also noted other aggregating factors might lead to violence. For example, the National Institute on Drug Abuse (1996) suggested communities with low levels of social organisation, regular interpersonal violence and high social disadvantage can be predictors of violence. Goldstein, however, noted drug use was a reality and that those who partook in the drug trade were well aware of the risks involved. Goldstein also suggested that while poverty fuels crime and violence within society and poverty alone cannot solely be blamed for theft-related offences.

Boyum and Kleinman (2003) built on Goldstein's (1985) framework and identified further links between crime and drug use. First, behaviour is affected by intoxication usually from drug use. Intoxication from illicit drugs can be linked to some criminal behaviour by the weakening of self-control, inhibitions, and foresight. These effects spill over and impair behaviour (Boyum & Kleiman, 2003). Second, drug use fuels the need for money to pay for illicit drugs and to pay off drug debts, usually by theft and other immediate methods of

gaining money. A person who uses illicit drugs on a regular basis may experience difficulties associated with sustaining employment. Thus, a drug dependent person may commit crime in order to obtain money and property to buy illicit drugs (Boyum & Kleiman).

The third component relates to the involvement of the illicit drug market, and the potential for violence to occur between buyers and sellers. Drug use and crime relates to the propensity to drive crime underground and away from public and police visibility, causing crime to become hidden and victims 'invisible' for fear of arrest or retribution (Boyum & Kleiman, 2003). Consequently, drug dealers often behave in any manner, with a very low likelihood of police reprisal, leading to an increase in interpersonal violence between drug dealers and drug buyers on the 'black market' (Boyum & Kleiman). Victims are unlikely to complain to police if they perpetrated another crime. Another consequence of the drug market is the lure of profit, particularly for young people. Drug-markets have encouraged youths to orchestrate their own illicit drug supply business, Boyum and Kleiman suggested youths trying their entrepreneurial skills within the drug market are likely to live in poorer areas where there is little support for education or employment. Thus, the lure of the drug market profit can be too much to resist for youths who have grown-up in impoverished areas and desire a prosperous life (Boyum & Kleiman).

McKetin, McLaren, and Kelly (2005) concurred with Goldstein's model of understanding the types of crimes committed by methamphetamine users. McKetin et al. found methamphetamine users have frequent contact with the police, and had committed at least one crime. Their study on Sydney's methamphetamine using population revealed a majority of arrests were related to illicit drug offences or theft, that is, economic crimes. Similarly, the main reason for crime was due to an increased need to acquire funds or goods to support an illicit drug use habit, with approximately one third of amphetamine users having spent time in prison (McKetin et al.). It was also determined that amphetamine users

who had committed violent crimes usually had a pre-existing propensity to being anti-social towards others (Boyum & Kleiman, 2003).

As with Goldstein (1985), Nurco, Kinlock, Hanlon, and Grittner (2001) also found an association between crime and drug use. Nurco et al. conducted a meta-analysis of American studies based on illicit drug use and crime. They found longitudinal studies suggested heroin use does not cause crime but rather was a by-product of increased illicit drug use. The meta-analysis also confirmed while participants committed property crimes prior to drug use, these crimes increased when heroin use became a dependent behaviour. Nurco et al. further suggested property-crime rates peaked during the highest levels of drug use (between three or more times per day). This does not exclude other factors contributing to the frequency of crime; but it does support the basic premise that drug-dependent people may need money to buy drugs and particularly so when sustaining employment is difficult. Thus, Nurco et al. supported Goldstein's theory of economic types of crime as being the predominant type of crime committed by drug-dependent people.

There appears, however, to have been little research into the drug/crime nexus involving Western Australian detainees and their use of amphetamines. To go some way to filling the gap, this research extended the analysis of DUMA data beyond the national analysis conducted by the Australian Institute of Criminology. The WA DUMA data presented an opportunity to investigate the drug/crime nexus to determine, if any, the relationship between variables, and identifying significant trends in the data.

The research questions for the current study were:

1. Have amphetamine use levels among WA detainees changed between 1999 and 2006?
2. Has the demographic profile of WA detainees who have used amphetamines changed between 1999 and 2006?
- 3) What alleged offences did amphetamine using WA detainees commit between 1999 and 2006? And are these offences for which amphetamine using detainees detained for, different from the offences for which amphetamine non-user were detained?

Chapter 4: Research Design

Chapter four presents the research methodology used for the current study of detainee amphetamine use. The purpose of this study was to examine the extent of amphetamine use by detainees who were processed at the East Perth lockup in Western Australia. It was designed to analyse statistically the routinely collected DUMA data for the period from 1999 to 2006. This study also sought to examine the demographic profile of detainee amphetamine users and the types of offences committed by amphetamine users compared with non-users. With its special focus on Goldstein's concepts, this study was distinguished from the broader analyses made of the DUMA data for the Australian Institute of Criminology.

An Australia-wide initiative that aimed to examine the demographics associated with detained people and their patterns of drug use is the ongoing Drug Use Monitoring in Australia Project (DUMA) (Graycar, 2000). The DUMA project utilised an in-depth survey to ascertain self-reported frequency, quantity and type of drugs used by offenders.

The DUMA survey contained questions on social demographics, including gender, employment status, education levels; prior criminal history and offending rates; patterns of drug use, the quantity, frequency and method of ingestion and with whom drug use occurs. The urinalysis component involves the detainee providing a urine sample to test for illicit drugs. However, urinalyses did not differentiate between illicit amphetamines and prescription amphetamine medication (Mouzos, Smith, & Hind, 2006).

This chapter begins by providing an overview of the procedure undertaken to analyse the secondary dataset employed for this study. This section defines the purpose and aim of the research and what was examined in relation to the research questions. The next section details the participants who formed the sample of the study. This is followed by an explanation of the data collection procedures, how data were collected, and the form in which they were received from the Australian Institute of Criminology. This section also outlines

aspects of the dataset examined to answer the research questions. The next section on data analysis outlines the analytical techniques used to address the various research questions. Chapter four concludes with a brief discussion of the limitations relevant to this study.

Research procedure

The research approach for the current study was to quantify the extent of amphetamine use by WA detainees. The purpose of this study was to gain a better understanding of amphetamine use amongst WA detainees by considering the level of amphetamine use, detainees' demographic profile and the types of offences they allegedly committed. These variables were examined on a longitudinal basis, as the data covered the period from 1999 to 2006. The dataset used was initially obtained from the Australian Institute of Criminology. This secondary dataset was readily available and provided a wide-range of information pertaining to detainees.

Participants

The target population for this research was all amphetamine-using detainees at the East Perth lockup in Western Australia. Detainees included both males and females 18 years of age or over. DUMA interviewers invited detainees to participate, regardless of their alleged offences, provided they were not deemed too intoxicated or violent to participate or were unable to give consent. Detainees were given a drink of water and snack while participating, but no other incentive was offered.

The Drug Use Monitoring in Australia Project (DUMA) was an Australia-wide initiative examining the demographics associated with detained people and patterns of their drug use (Graycar, 2000). The DUMA project utilises an in-depth survey to ascertain self-reported frequency, quantity and type of drugs used by offenders. In WA, the interviews

were conducted at the East Perth Watch house by independent researchers from the School of Law and Justice at Edith Cowan University (Graycar). Participants are assured that the research is not associated with the police. DUMA collected data on offenders and their illicit drug practices to develop an ongoing understanding of the trends of illicit drug use amongst the offending population of Australia and to inform policy change and social awareness (Graycar).

The DUMA survey contained questions on social demographics, including gender, employment status, education levels; prior criminal history and offending rates; patterns of drug use, the quantity, frequency and method of ingestion and with whom drug use occurs. The urinalysis component involved the detainee providing a urine sample to test for illicit drugs. It should be noted however, those urinalyses do not differentiate between amphetamines and prescription based-amphetamine medication (Mouzos, Smith, & Hind, 2006). Table 1 presents a total of 5143 male and female detainees participated in the DUMA survey from 1999 to 2006.

Table 1

Number of detainees who participated in DUMA program (1999 – 2006)

Year	1999	2000	2001	2002	2003	2004	2005	2006	TOTAL
Number of detainees	478	569	742	775	667	700	602	610	5143

Data collection

The secondary dataset obtained for this study included amphetamine-related data from the DUMA survey and the results of the voluntary urine samples provided by detainees (detecting recently used illicit drugs). DUMA data were collected each year from 1999 to 2006 on a quarterly basis, over a three week period. Interviewers employed by Edith Cowan

University collected the data, and were independent of the Western Australia Police. All interviewers were trained and experienced, which ensured a standardised approach to the interviews. This added to the reliability and validity of the results collected by minimising the potential for interviewer bias. The dataset contained a large amount of information that was irrelevant for this study. Once removed, the dataset comprised the main measures required to address the research questions that formed the focus of this study. An overview of these measures is provided in the following section.

Measures

A wide range of variables in the DUMA dataset were determined to be relevant to this study. These related to three key areas (i) amphetamine use indicators; (ii) demographic profile characteristics; and (iii) alleged offences committed.

(i) Amphetamine use indicators

Since no universal measure of amphetamine use could be found in the literature, five self-reported amphetamine use indicators and one objective measure of amphetamine use were initially examined to assess their suitability as measures for this research. The self-reported indicators were obtained from the DUMA survey and the objective measure was drawn from the urinalysis results from the voluntary urine sample provided by detainees to detect the presence of recent amphetamine use (within the past 48 hours). The self-reported amphetamine use indicators included:

- If the detainees had ever used amphetamines;
- The number of days amphetamines had been used in the past 30 days;
- Amphetamine use in the 12 months prior to detainment;
- Amphetamine use in the 48 hours preceding detainment; and
- Self-reported amphetamine dependence.

With the exception of ‘the number of days amphetamines had been used in the past 30 days’ all of these self-report indicators were dummy coded using one to represent an amphetamine user and a zero to represent a non-amphetamine user. The self-reported number of days amphetamines had been used in the past 30 days was measured as a continuous variable from zero to 30. The objective indicator of amphetamine use was measured as a categorical variable whereby a positive amphetamine urinalysis result was coded as a one representing an amphetamine user and a negative amphetamine urinalysis result was coded as a zero representing an amphetamine non-user.

(ii) *Demographic profile*

Seven demographic characteristics were analysed to construct a profile of amphetamine-using detainees. Some data manipulation was required before these data could be analysed. This included transforming the data into categories; this was applied to the age of detainees. This category was manipulated as a small number of reported ages were missing; therefore, age was estimated by subtracting the year of detainment from the detainee’s year of birth.

The demographic profile of WA amphetamine-using detainees was developed based on the examination of seven personal characteristics as indicated below:

Variable	Explanation	Category
Age	Self-reported age or estimated age (if missing) This was initially measured as a continuous variable of age in years and then categorised by age groups	<ul style="list-style-type: none"> • 18-24 years • 25-34 years • 35-44 years • 45+ years
Gender	Measured as a dichotomous categorical variable	<ul style="list-style-type: none"> • Male • Female
Education level	This was measured as a categorical variable and the categories were adjusted to include:	<ul style="list-style-type: none"> • Completed Year 10 or less including never went to school • Completed Year 11 or 12 • Still at school, TAFE or university • Some TAFE or university – incomplete • Completed TAFE or university
Marital status	This was initially measured as a multiple category variable that was transformed into a dichotomous categorical variable.	<ul style="list-style-type: none"> • Not in an intimate relationship • in an intimate relationship
Residence	This was initially measured as a multiple category variable for where the person had lived most of the time in the prior 30 days. This measure was transformed into a dichotomous categorical variable.	<ul style="list-style-type: none"> • Living in own residence • Living at another person's residence
Employment	This was measured as a categorical variable	<ul style="list-style-type: none"> • Employed full time • Employed part-time • Unemployed for various reasons • Workforce non-

		participant (stay-at-home mothers)
Aboriginal and Torres Strait Islander origin	Whether the detainee identified as ATSI origin or not was measured as a dichotomous categorical variable based on the detainees response to two questions: “What is your ethnic background?” and “Do you consider yourself Aboriginal or ATSI?”	<ul style="list-style-type: none"> • ATSI • Non ATSI

Alleged offences

Offences committed by amphetamine-using detainees were compared with the offences committed by amphetamine non-using detainees. An extensive amount of data manipulation was required for the alleged offences committed by detainees to be transformed into a usable format for analysis. The DUMA dataset provided information on the alleged specific offence committed by detainees on their current detainment and within the past 12 months. For the purposes of the current research, the top three offences committed by detainees were categorised according to the Australian Standard Offence Classification framework (Australian Bureau of Statistics, 2008). This classification framework groups offences into 16 related categories, one of which is “miscellaneous”. This latter category was discarded thus, 15 different ASOC categories of offences were initially used in the analysis for the current study. The categories were as follows:

- i. Homicide and related offences
- ii. Acts intended to cause injury
- iii. Sexual assault and related offences
- iv. Dangerous and negligent acts endangering persons
- v. Abduction, harassment and other offences against the person
- vi. Robbery, extortion and related offences
- vii. Unlawful entry with intent/burglary, break and enter
- viii. Theft and related offences
- ix. Fraud, deception and related offences

- x. Illicit drug offences
- xi. Prohibited and regulated weapons and explosives offences
- xii. Property damage and environmental pollution
- xiii. Public order offences
- xiv. Road traffic and vehicle regulatory offences
- xv. Offences against justice procedures, government security and government operations (“breach type offences”)

After the transformation of the data into both the 15 ASOC categories and the two broad categories of offences against property or person, a large number of breach-types offences were apparent. The breaches category contained such a large percentage of detainees that it was suspected to be potentially camouflaging relationships between amphetamine use and offences committed as there was no indication of what the breach was for. It was important to identify the initial offences that most likely led to the detainment of those who allegedly committed breach-type offences. The assumption was made that the initial offence was committed sometime in the previous 12 months. Thus, further transformation of the data involved removing the breach-type offence, and substituting it with the top three offences the detainees had committed within the past 12 months as the best available substitute of what were likely to be the original charge/s to which the breach was related. The purpose of this was to provide a more detailed examination of offences committed by amphetamine users and non-users.

Next, offences were further divided into two broad categories of offence types: offences against a person (defined as ASOC1, ASOC2, ASOC3, ASOC5, & ASOC6) or offences against property (defined as ASOC 7, ASOC8, ASOC9, & ASOC12). This involved data being further transformed by categorising offences to either person-related or property-related offences.

Data analyses

Changes in the level of amphetamine use, demographic profile characteristics and types of offences committed over time were analysed using SPSS versions 17 and 19. This computer software program enabled the data to be statistically analysed and transformed as required. Prior to conducting this analysis, some data adjustment was necessary. The dataset was initially received with all data was in a quarterly reporting format from when the data was obtained particular to each year (one year equated to four quarters). Before analysis commenced, the dataset was adjusted to aggregate the quarterly data into a yearly format. Also, the variable of the number of days a detainee self-reported using amphetamines in the 30 days prior to detainment at the East Perth lock was transformed to create a new variable. This newly created variable defined detainees who reported using amphetamine zero days in the past 30 days as “non-users” and detainees who had used amphetamines at least one day in the previous 30 days as a “user”.

The five self-reported measures of amphetamine use were initially analysed with a Kendall’s tau_b correlation to determine the strength of relationship between each of the measures. This type of analysis was most appropriate for this data as the measures were mostly categorical, dichotomous and not normally distributed. This analysis also formed the basis for determining which of the measures would be used to define an amphetamine user and be employed in the subsequent analyses.

The demographic profile of amphetamine users was examined by analysing seven variables: gender; age; education level; marital status; residential status; employment; and ATSI origin. These seven variables underwent a series of cross-tabulations, which were conducted between each demographic variable and the year in which the data were collected (1999-2006). Given that the age of each detainee was initially measured as a continuous variable, an ANOVA was also used to analyse if the mean age of detainees had changed over

time. Chi-square analyses were also performed between each of the demographic profile variables and time. These analyses sought to evaluate the significance of relationships between each of the variables and time. The *p*-value used for all of the statistical significance testing procedures was set at $p < .05$; thus a result with a *p*-value below 0.05 was considered statistically significant.

Alleged offences committed by WA detainees were comparatively analysed between amphetamine users and amphetamine non-users. As with the demographic profile of amphetamine users, each type of alleged offence was cross-tabulated with whether the detainee was an amphetamine user or non-user, and frequencies were obtained. In addition, a chi-square analysis was performed for each of the 15 types of offences, as well as for the two broad categories of offences - against a person or against property. Chi-square analyses were then also repeated with the only 14 types of offences, whereby the breach-type offences had been substituted with the proxy offences. The Chi-square analyses sought to establish if there was a significant difference between the types of offences committed by amphetamine users compared with non-users.

Ethics approval

Permission from the Australian Institute of Criminology (AIC) was granted to access the data set from DUMA surveys. Edith Cowan University Ethics Committee also granted ethics approval prior to the research commencing. Participation by detainees in the DUMA research was voluntary and anonymous. I played no part in surveying the detainees. However, I completed an Ethics Declaration form to declare at all times, I am required to protect the data from unauthorised use. Participants in the DUMA surveys were anonymous. Confidentiality was assured, as no identifying information appeared on the questionnaires or urine samples provided voluntarily by participants.

Limitations

All research has limitations and this study was no exception. As this study relied upon self-reported responses, this type of research raises some concern about potential bias affecting the results. Biases can be derived from participants' misreporting about their amphetamine use; either minimising the degree of use or providing socially-accepted responses. However, one advantage of utilising the DUMA data was the availability of an objective measure, that is, the urine sample provided by detainees. Results of urine sample tests were compared with the self-reported data. A chi-square test assessed the extent of this potential bias in the self-reported measure, with a comparison of detainees who did and did not provide a urine sample. This comparison revealed an insignificant result, which indicated there was no significant difference between detainees who did and did not provide a urine sample and their self-reported use of amphetamines. Furthermore, there was a moderately strong and statistically significant relationship between the objective amphetamine-use indicator and most of the self-reported indicators of amphetamine-use. This added greater confidence as to the reliability of the self-reported measures used.

Another potential limitation of this research was related to the analysis of alleged offences of WA detainees. Since there were a large number of breach-type offences committed, the substitution of this offence with the best available proxy was necessary as to identify the original offence. The removal of this offence from the dataset and substituting it with the original offence could be misleading, as the breach offence may not have been related to the last offences with which these detainees were charged. However, in the absence of any more accurate data, this was considered to be the best available proxy measure. Also, the external validity of this research may be limited, as WA amphetamine-using detainees is a rather unique sample. Therefore, generalisation of the data may not be applicable to other populations.

Chapter 5: Results

Presented in this chapter are the results obtained from the statistical analysis undertaken to address the four objectives of this research. The results are presented in four main sections. The first part examines five of the amphetamine use indicators available in the DUMA data. This section looks at the strength of relationship between the different indicators of amphetamine use to help determine which of these measures of amphetamine use to employ for the subsequent analyses. The second section addresses research question one and presents the results pertaining to detainee amphetamine use over time. Specifically it examines the trends in selected amphetamine use indicators for the period from 1999 to 2006 to gain an understanding of what has happened to the level of amphetamine use amongst WA detainees over this period of time. This is followed by results pertaining to research question two which addressed the demographic profile of WA detainee amphetamine users and whether this profile has changed over time. The final section addressed research question three by presenting the results on the relationships between the types of offences committed by amphetamine using detainees compared with non-users.

Amphetamine use indicators

In the absence of a universally-accepted measure of amphetamine use, six indicators of amphetamine use were initially examined from the DUMA database set. These indicators were analysed to observe the strength of relationship between each of the indicators to gain some indication of how well they appeared to function as alternative measures of amphetamine use. Also, this analysis of the amphetamine-use indicators was employed to help define which detainees could be identified as amphetamine users.

A Kendall's tau_b correlation analysis was performed on the five self-reported indicators and the one objective urinalysis indicator in order to identify the strength of the

correlations and hence the degree of agreement between these different indicators. A summary of the correlation results are presented in Table 1 below.

Table 1

Kendall's tau_b correlations of self-reported and objective measures of amphetamine use amongst WA detainees

		Ever tried amphetamines	Days used amphetamines in past 30 days	Used amphetamines past 12 months	Used amphetamines in past 48 hours	Dependent on amphetamines	Urinalysis positive for amphetamines
Ever tried amphetamines	Correlation Coefficient Sig. (2-tailed) N	5143					
Days used amphetamines in past 30 days	Correlation Coefficient Sig. (2-tailed) N	.368** .000 5117	5117				
Used amphetamines past 12 months	Correlation Coefficient Sig. (2-tailed) N	.542** .000 5134	.678** .000 5116	5134			
Used amphetamines in past 48 hours	Correlation Coefficient Sig. (2-tailed) N	.262** .000 4092	.649** .000 4079	.498** .000 4091	4092		
Dependent on Amphetamines	Correlation Coefficient Sig. (2-tailed) N	.233** .000 4946	.484** .000 4925	.416** .000 4942	.410** .000 3900	4946	
Urinalysis positive for Amphetamines	Correlation Coefficient Sig. (2-tailed) N	.307** .000 3778	.561** .000 3763	.491** .000 3776	.637** .000 3072	.357** .000 3628	3778

From Table 1 it can be seen that the correlations between most of the amphetamine-use indicators were moderate to strong and that all of the correlations were statistically significant at a one-percent level of significance. The strongest correlations occurred between WA detainee self-reported use of amphetamines within the 12 months prior to detainment and those who self-reported using amphetamines in the 30 days prior to detainment ($r = .678, p < .001, n = 5116$). This was closely followed by WA detainee self-reported amphetamine use in the 48 hours prior to detainment and self-reported amphetamine use in the 30 days prior to detainment ($r = .649, p < .001, n = 4079$). The correlation between the

independent measure (urine sample) and two of the self-reported measure also produced a strong correlation: independent measure and amphetamine use 30 days prior ($r = .561, p < .001, n = 3763$) and detainees who had used amphetamines 48 hours prior ($r = .637, p < .001, n = 3072$). The weakest correlation was between WA detainee self-reported amphetamine dependency and self-reports of having ever tried amphetamines ($r = .233, p < .001, n = 4946$). Overall, the self-reported indicator of amphetamine use in the past 30 days had the strongest average correlation with all other indicators (.548) and with all other self-reported indicators (.545). Furthermore, the self-reported indicator of ever having tried amphetamines had the weakest average correlation with all other indicators (.342) and with all other self-reported indicators (.351).

The correlations between the only objective measure, a positive urine sample for amphetamine use, and the self-report measures, ranged from .307 ($n = 3778$) for detainees who had ever tried the drug, to .637 ($n = 3072$) for detainees who had used the drug in the 48 hours prior to being detained. This strong correlation with the latter self-report indicator of amphetamine use is perhaps not surprising as a urinalysis detects only very recent drug use.

Based on the results reported in Table 1, two indicators were selected for subsequent analysis based on the relative strength of the correlations between the alternative measures and whether the indicator was an objective measure or a self-report (hence subjective) measure. The indicators selected were having a positive urine sample for amphetamine use as it was the only objective measure available, and self-reported amphetamine use in the previous 30 days as this self-report measure was found to have the strongest average correlation with the other indicators. Consequently, all subsequent analyses presented in the remainder of this results section are based on this one self-report measure and the one objective measure.

Research question one: *Amphetamine use*

One key purpose of this research question was to ascertain if there had been a change in the level of amphetamine use among a sample of WA detainees between 1999 and 2006. Two indicators were selected to address this research question. As explained in the previous section, these were self-reported amphetamine use during the 30 days preceding detainment and the objective measure of a positive amphetamine urinalysis result. Figure 2, provides a graphical presentation of the level of amphetamine use over time employing these two indicators.

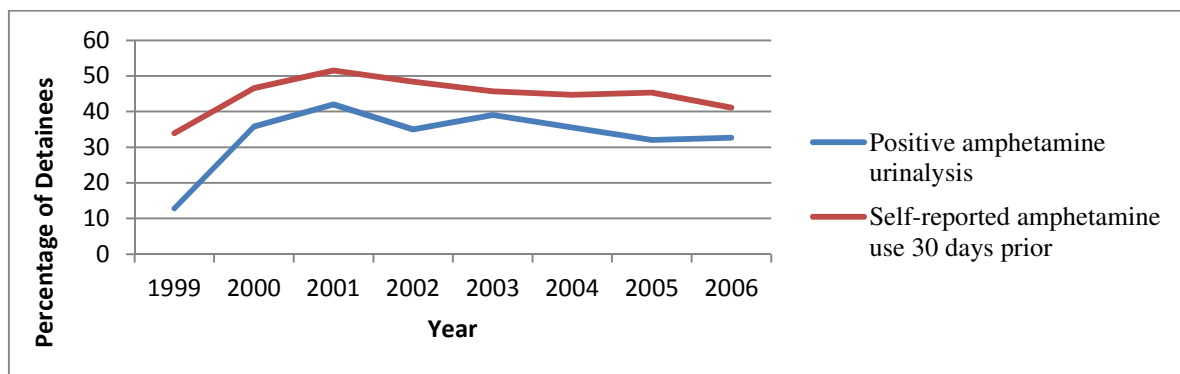


Figure 2 Amphetamine use indicators over time - objective and self-report indicator

Table 2 presents data on the proportion of WA detainees using amphetamines for the two selected amphetamine use indicators from 1999 to 2006. A chi-square test was conducted on the cross-tabulations between amphetamine user or non-user (for each indicator) and time, and the results are reported in Table 2. Furthermore, a one-way ANOVA test was conducted to evaluate if the average number of days of self-reported amphetamine use had changed over time based on the self-reported number of days that amphetamines had been used in the 30 days prior to detainment which was initially measured as a continuous variable.

Table 2

Analysis of WA detainee amphetamine use – objective and self-report indicators

Year	Positive amphetamine urinalysis <i>(objective indicator)</i>	Sample size (n)	Amphetamine use in the 30 days prior to detainment <i>(self-report indicator)</i>	Sample size (n)
1999	12.8%	304	33.9%	478
2000	35.8%	400	46.6%	569
2001	42.0%	564	51.5%	742
2002	35.0%	595	48.4%	775
2003	39.0%	502	45.7%	667
2004	35.5%	529	44.7%	700
2005	32.0%	447	45.3%	602
2006	32.7%	437	41.1%	610
Sample size	3778		5143	
Chi-Square	84.47		44.300	
Degrees of freedom	7		7	
p-value	.012		<.001	
F-statistic value			1.39	
Degrees of freedom			5115	
p-value			.163	

¹Note that an amphetamine user is defined as a person who self-reported using amphetamines at least one day in the 30 days prior to detainment.

Table 2 shows detainee amphetamine use initially followed a general upward trend, with 2001 containing the largest proportion of detainee amphetamine users. After this year, amphetamine use tended to move into a slight downward trend. The graphical trends show from 1999 onwards a general upward ascent for both indicators until 2001. A downward trend follows, with a slight upturn in 2003 for detainees with a positive urine sample and a slight upturn in 2005 for self-reporting amphetamine-using detainees. Overall, from 2001 the percentages for both indicators remained relatively stable with no substantive fluctuations. Furthermore, the proportion of detainees who self-reported amphetamine-use in the past 30 days were consistently higher than the proportion of detainees who provided a positive

amphetamine urinalysis result, even though the self-reported use by those detainees who gave a urine sample was not significantly different from the self-reported use by those detainees who did not provide a sample. The chi-square test conducted on the proportion of detainees who returned a positive urine sample result for amphetamines over time produced a significant result ($\chi^2 = 84.474, 7df, p = .012$) as did the chi-square test using the self-report amphetamine use indicator ($\chi^2 = 44.3, 7df, p < .001$). This indicates that a significant relationship existed between time and the proportion of detainees using amphetamines.

In addition to testing the proportion of detainees using amphetamines overtime, the average number of days self-reported amphetamine use for both the total detainee sample and just the self-reported amphetamine using sample was also assessed using a one-way ANOVA with Post Hoc tests. Across the sample of all detainees self-reported amphetamine use in 1999 was significantly lower than all other years. Also, usage in 2001 was significantly higher than 1999 and 2005 and 2006 ($f = 7.885, 7df, p < .001$). Also, amongst the self-reported amphetamine-using sample, the ANOVA results showed the average numbers of days of use were significantly higher in 2001 and 2002, compared to 1999, but not significantly different compared to any other years. This suggested amongst self-reported detainee amphetamine users, there has been no significant change in the average number of days amphetamines were used since 2002 ($f = 3.199, 7df, p = .002$).

Research question two: *Demographics*

Research question two concerned the demographic profile of amphetamine-using detainees at the WA East Perth lock-up. The purpose of doing so was to ascertain the main demographic characteristics of amphetamine-using detainees and whether there had been a change in the demographic profile between 1999 and 2006. As described in the previous

chapters, seven demographic profile variables were analysed with cross-tabs, chi-square analyses, and an ANOVA (including Post Hoc tests) for the age group variable.

Gender

The first demographic characteristic examined was gender. To investigate if this demographic characteristic of amphetamine users had changed over time, gender was cross tabulated with the year and a chi-square test conducted to assess if there was any significant relationship between these variables. Table 3 summarises the results showing the proportion of male amphetamine users over the eight year period under consideration, along with the chi-square test results.

Table 3

WA Male detainee amphetamine users

Year	Positive amphetamine urinalysis (% Male detainees) <i>(objective measure)</i>	Sample size (n)	Amphetamine use in past 30 days prior to detainment (% Male detainees) <i>(self-report indicator)</i>	Sample size (n)
1999	79.5%	39	89.5%	162
2000	74.1%	143	76.2%	265
2001	77.2%	237	76.7%	382
2002	79.2%	207	81.8%	374
2003	75.9%	195	78.6%	304
2004	78.7%	188	81.5%	313
2005	81.1%	143	81.3%	273
2006	71.3%	143	74.5%	251
Sample size	1295		2324	
Chi-Square	5.81		20.06	
Degrees of freedom	7		7	
p-value	.562		.005	

The vast majority of detainees using amphetamines were male, ranging from 71% to 81% of the sample for the objective indicator and from about 75% to 90% of the sample for the self-report measure. In most years the proportion of amphetamine users who were male was slightly greater for the self-report measure than for the objective measure of amphetamine use. The most notable variation occurred in 1999 where almost 90% of self-reported amphetamine users were male compared with 80% of male detainees sampled returning a positive urine sample. This year, however, also had a substantially smaller number of detainees in the sample which may have affected the results.

Over the eight-year time period, the proportion of detainee amphetamine users who were male remained consistently above 70%, and there did not appear to be any general upward or downward trend. This observation is at least partially supported by the chi-square test results for the cross-tabulations. For the objective measure of a positive urinalysis amphetamine result, the relationship between gender and year was not statistically significant ($\chi^2 = 5.81, 7df, p = .562$). The chi-square test result for the self-reported amphetamine users, however, suggested a significant relationship exists between the gender of amphetamine users and time ($\chi^2 = 20.06, 7df, p = 0.005$). An examination of the proportion of male detainees self-reporting amphetamine user in the different years revealed a sharp decline from 1999 to 2000, after which the proportion of males levelled out and remained in the range of 75% to 82%. Given the possibility that the 1999 sample result may have produced an anomaly, the chi-square test on this self-report data was repeated for the period 2000-2006, with the exclusion of data from 1999. This produced an insignificant chi-square result, which was consistent with the result for the chi-square test using the objective urinalysis indicator measure. Thus, overall these results confirmed the majority of detainee amphetamine users were male, which remained relatively stable over time, at least for the period from 2000 to 2006.

Age

The second demographic variable considered in building a profile of detainee amphetamine users was age. Across both indicators of amphetamine use the largest proportion of amphetamine using detainees were aged between 18 and 35 years. The age variable was initially measured as a continuous variable, but was also examined in a categorical form. Four age groups consisted of: 18 to 24 years, 25 to 34 years, 35 to 44 years, and 45 plus years. Cross-tabulations and chi-square tests were performed between the age group of detainee amphetamine users and time for each indicator. In addition, a comparison of the mean age of detainee amphetamine users over time was made using an ANOVA test. Tables 4 and 5 detail the cross-tabulations and chi-square and ANOVA test results for the objective and self-reported measures of detainee amphetamine use.

Table 4

Positive amphetamine urine sample and age

Year	Age (YEARS)				Sample	Mean age (years)	Std. Deviation
	18-24	25-34	35-44	45+			
1999	56.4%	28.2%	15.4%	0%	39	25.4	7.11
2000	45.5%	43.4%	7.7%	3.5%	143	26.7	6.77
2001	47.7%	42.6%	8.9%	0.8%	237	26.1	6.0
2002	39.9%	42.8%	16.3%	1.0%	208	27.4	6.93
2003	37.8%	43.9%	15.8%	2.6%	196	28.0	7.33
2004	37.2%	37.2%	22.9%	2.7%	188	28.6	7.51
2005	30.8%	42.7%	22.4%	4.2%	143	29.7	7.58
2006	37.1%	36.4%	21.7%	4.9%	143	29.3	8.2
Sample size	1297						
Total						27.8	7.2
Chi-Square	51.78						
Degrees of freedom	21					7	
p-value	< .001					<.001	
F value						5.79	

Table 5

Self-reported amphetamine use 30 days prior to detainment and age

Year	Age (YEARS)					Sample	Mean age (years)	Std. Deviation
	18-24	25-34	35-44	45+				
1999	52.5%	38.3%	9.3%	0%	162	25.3	6.40	
2000	50.9%	38.5%	8.7%	1.9%	265	25.8	6.46	
2001	50.5%	40.8%	7.6%	1.0%	382	25.7	5.99	
2002	43.5%	44.8%	11.2%	0.5%	375	26.5	6.42	
2003	40.7%	45.6%	12.1%	1.6%	305	27.1	6.82	
2004	40.3%	37.1%	19.8%	2.9%	313	28.2	7.55	
2005	35.5%	41.0%	20.1%	3.3%	273	29.0	7.88	
2006	37.5%	38.6%	19.1%	4.8%	251	29.1	7.88	
Sample size	2326							
Total						27.1	7.046	
Chi-Square	88.70							
Degrees of freedom	21						7	
p-value	< .001					<.001		
F value						12.58		

Table 4 shows most of the age categories experienced a progressive increase over time except for the ages 18-24, which in 1999 started relatively high (56%) and substantially tapered off in 2006 (37%). The age category of 45 plus years increased greatly, if only on a relative basis within the age category itself, though, not overall when compared to the rest of the data. There was a statistically significant chi-square result for detainees who produced a positive amphetamine urine sample and age categories over time ($\chi^2 = 51.75, 21df, p < 0.001$), indicating a significant relationship between amphetamine users and time.

Table 5 also shows a significant chi-square relationship exists between age groups and the years concerned based on the self-report amphetamine use indicator ($\chi^2 = 88.7, 21df, p <.001$). The results show a majority of amphetamine using detainees were aged between 18 and 24 years. As well, the age group of 45 plus years showed a general upward trend, from

0% to nearly 5%. The age category of 35 to 44 years also indicated a general upward trend, peaking at 20% in 2005.

It appeared in most years at least three-quarters of WA amphetamine using detainees were under 35 years. The general trend however was that this proportion declined over time (from 85-90% in the earlier years to around 74% in the latter years). This was reflected in the increase in the average age over time from around 25 to 26 years in the earlier years to 28 to 29 years in the latter years. The ANOVA results also indicated a statistically significant relationship between the average age and time of self-reported users, ($F = 12.58$, 7df, $p < 0.001$) as well as detainees with a positive urine sample ($F = 5.79$, 7df, $p < 0.001$). These results indicated the mean age of amphetamine-using detainees increased over time. The mean age for both indicators ranged from 25 years in 1999, to 29 years in both 2005 and 2006. Post-hoc tests for detainees who provided a positive urine sample indicated the mean age of amphetamine-using detainees increased significantly between 2004 and 2006. Whereas the post-hoc tests for detainees who self-reported amphetamine use revealed the significant differences between the age categories occurred in 2001, 2005, and 2006. Overall, these results suggested the mean age of amphetamine using detainees increased over time.

Aboriginal or Torres Strait Islander Origin

The ethnic origin of detainee amphetamine users, specifically, whether they identified themselves as Aboriginal or Torres Strait Islanders (ATSI), and if this changed over time was also considered. Analyses included a cross-tabulation and a chi-square test to examine if the ethnic origin of amphetamine using detainees changed over time. Table 6 details the proportion of amphetamine-using detainees who self-identified as being of ATSI origin.

Table 6

Amphetamine use indicators – objective and self-report and ATSI identification

Year	Positive amphetamine urinalysis ATSI detainees	Sample size (<i>n</i>)	Amphetamine use 30 days prior to detainment ATSI detainees	Sample size (<i>n</i>)
1999	23.7%	38	19.0%	158
2000	20.1%	139	22.3%	256
2001	23.6%	229	22.1%	367
2002	27.0%	200	25.7%	358
2003	30.7%	192	27.0%	293
2004	27.2%	184	27.9%	301
2005	26.4%	140	26.4%	261
2006	25.4%	134	25.0%	236
Sample size	1256		2230	
Chi-Square	5.79		8.04	
Degrees of freedom	7		7	
p-value	.564		.328	

Table 6 shows a majority of amphetamine using detainees did not identify as either Aboriginal or Torres Strait Islander. This remained relatively stable over time. It did appear, however, that detainees who provided a positive urine sample were slightly more likely to be of ATSI origin (30.7% in 2003) compared to detainees who self-reported amphetamine use in the 30 days prior to detainment (27.9% in 2004). However, a significant change over time between the indicators was not apparent, as detainees who produced a positive amphetamine urine sample and identified themselves ATSI did not change significantly over time ($\chi^2 = 5.79, 7df, p = .564$), as was the case for detainees who self-reported amphetamine use in the 30 days prior to detainment ($\chi^2 = 8.04, 7df, p = .328$). Overall, results indicated approximately, between one fourth and one fifth of amphetamine-using detainees identified as being of ATSI origin and that this did not change significantly over time.

Relationship status

The demographic characteristic of relationship questions related to whether the detainee self-reported being in an intimate relationship with another person or not. This question assessed amphetamine-using detainees and their relationship, and if this had changed overtime (1999-2006). Relationship status was cross-tabulated with year of detainment and a chi-square test was conducted to evaluate if there was any significant relationship between these variables. Table 7 summarises the results showing the proportion of detainee amphetamine users who were not in an intimate relationship at the time of detainment.

Table 7

Amphetamine use indicators - objective and self-report and relationship status

Year	Positive amphetamine urine sample Percentage of detainees NOT in an intimate relationship <i>(objective measure)</i>	Sample size (n)	Amphetamine use in the 30 days prior to detainment Percentage of detainees NOT in an intimate relationship <i>(self-reported measure)</i>	Sample size (n)
1999	82.1%	39	76.4%	161
2000	81.8%	143	76.6%	265
2001	67.5%	237	71.5%	382
2002	71.2%	208	74.4%	375
2003	71.9%	196	72.5%	305
2004	67.0%	188	68.4%	313
2005	67.8%	143	72.2%	273
2006	67.8%	143	66.1%	251
Sample size	1297		2325	
Chi-Square	14.67		16.61	
Degrees of freedom	7		7	
P value	.04		.02	

Table 7 shows a majority of amphetamine-using detainees reported not being in an intimate relationship. Both indicators of detainee amphetamine use did not appear to follow a definitive trend. The objective measure ranged from 82% (1999) to 67% (2006), whereas the self-reported measure ranged from 76% (1999) to 66% (2005). The statistical results for both indicators support the existence of a significant relationship between the proportion of amphetamine-using detainees in an intimate relationship and time. While there was no definitive trend (no fluctuation from one year to the next) the general pattern did suggest a general downward trend. Over time it appears that more amphetamine users were in an intimate relationship.

Though, a significant difference was found overtime for both amphetamine use indicators. Detainees who produced a positive amphetamine urine sample reported a significant chi-square result ($\chi^2 = 14.67, 7df, p = 0.04$), and detainees who self-reported amphetamine use 30 days prior to detainment reported a significant result ($\chi^2 = 16.61, 7df, p = .02$). Both of these significant chi-square test results indicated a significant difference was found between each of the amphetamine use indicators and time. These results infer most amphetamine using detainees were single, with slight variations overtime, especially between 1999 and 2005.

Type of residence

A detainee's residence is important as an indicator of stability in their life (Kraemer, Gately, & Kessell, 2009). This demographic variable involved two categories of residence, a detainee either rented or lived in their own home or lived at another person's residence. Analyses involved the cross-tabulation of type of residence with the years concerned (1999-2006), with the inclusion of a chi-square test to examine if any of the relationship between

these variables was significant. Table 8 shows a majority of amphetamine-using detainees resided at another person's place.

Table 8

Amphetamine use indicators – objective and self-report and type of residence

Year	Positive amphetamine urinalysis Live at another person's place <i>(objective measure)</i>	Sample size (n)	Amphetamine use 30 days prior to detainment Live at another person's place <i>(self-report indicator)</i>	Sample size (n)
1999	66.7%	39	62.3%	162
2000	75.5%	143	73.2%	265
2001	70.9%	237	73.8%	381
2002	68.3%	208	68.3%	375
2003	65.1%	195	66.8%	304
2004	62.2%	188	63.9%	313
2005	65.7%	143	69.2%	273
2006	59.4%	143	60.6%	251
Sample size	1296		2324	
Chi-Square	12.48		20.59	
Degrees of freedom	7		7	
p-value	.08		.004	

Table 8 details the residential status of WA amphetamine using detainees from 1999 to 2006. Both indicators of amphetamine use revealed that 59% to 75% of detainees lived at another person's residence. This result fluctuated overtime for both measures; however, a definitive trend was not clear. One notable variation occurred in 2000, with over 75% of detainees sampled who returned a positive urine sample lived at another person's residence, compared to 73.8% of self-reported amphetamine users in 20001. However, only detainees who self-reported amphetamine use in the 30 days prior to detainment was found to have a significant change over time ($\chi^2 = 20.59, 7df, p = .004$), whereas detainees who returned a positive amphetamine urine sample were not found to have a significant difference overtime

($\chi^2 = 12.48, 7df, p = .08$). This result could relate to the substantial percentage decrease in 2006 compared to 1999.

Education

As described in the previous chapter, the demographic characteristic of education was divided into five different categories for both amphetamine use indicators. The education demographic characteristic of detainee amphetamine users was cross tabulated with the year, and a chi-square test conducted to assess if there was any significant relationship between education level and time (1999-2006). Tables 9 and 10 present the cross-tabulation and chi-square test results.

Table 9

Detainee education level and positive amphetamine urine sample

Year	Completed Year 10 or less including never went to school	Completed Year 11 or 12	Still at school, TAFE or university	Some TAFE or university – incomplete	Completed TAFE or university	Sample size
1999	30.8%	10.3%	5.1%	30.8%	23.1%	39
2000	43.4%	11.9%	2.8%	16.8%	25.2%	143
2001	66.7%	18.6%	2.5%	3.8%	8.4%	237
2002	67.8%	12.5%	2.4%	7.2%	10.1%	208
2003	60.7%	16.3%	4.1%	7.1%	11.7%	196
2004	59.6%	13.3%	4.3%	8.5%	14.4%	188
2005	60.8%	15.4%	2.8%	6.3%	14.7%	143
2006	57.3%	16.1%	1.4%	7%	18.2%	143
Sample size	1297					
Chi-Square	93.31					
Degrees of freedom	28					
p-value	< .001					

Table 10

Detainee education level and self-reported amphetamine use 30 days prior to detainment

Year	Completed Year 10 or less including never went to school	Completed Year 11 or 12	Still at school, TAFE or university	Some TAFE or university – incomplete	Completed TAFE or university	Sample size
1999	39.5%	9.3%	6.2%	23.5%	21.6%	162
2000	41.9%	12.5%	2.6%	15.1%	27.9%	265
2001	66%	18.6%	2.4%	4.5%	8.6%	382
2002	65.9%	11.7%	2.9%	6.4%	13.1%	375
2003	58.7%	19.0%	3.3%	6.6%	12.5%	305
2004	57.2%	16.6%	3.8%	10.2%	12.1%	313
2005	63.7%	14.7%	2.9%	8.1%	10.6%	273
2006	58.6%	17.5%	1.6%	6.0%	16.3%	251
Sample size	2326					
Chi-Square	174.15					
Degrees of freedom	28					
p-value	< .001					

In most years the majority of amphetamine-using detainees had completed Year 10 or less. Overall, the general trends of Tables 9 and 10 appear to show the level of education fluctuated overtime for amphetamine-using detainees. This was most apparent with two thirds of detainees who had completed Year 10 or less and including never went to school; which ranged from 30% in 1999 to 67.8% in 2002 for the sample of the objective indicator, and from 39.5% in 1999 to 65.9% in 2002 the self-reported measure. Both measures of detainee amphetamine users who were still at school, TAFE or university and detainees who had incomplete TAFE of university education, appeared to decrease overtime. Most notably were detainees who had incomplete TAFE or university education, ranging from 30.8% in 1999 to 7.1% in 2003 for the objective indicator, and 23.5% in 1999 to 6.0% in 2006 for the self-reported measure. Another shift in the data could be seen in both amphetamine use indicators,

with detainees who completed TAFE or university. Nearly a quarter of amphetamine-using detainees had a TAFE or university education between 1999 and 2000. However, overtime the number of educated detainees declined and the percentage of detainees with low levels of education increased. This change in the data was further supported by both chi-square results being significant.

The objective indicator measure revealed a significant change had occurred in the data over time ($\chi^2 = 93.31, 28df, p < .001$). This was also found to be the case for the sample of self-reported amphetamine users ($\chi^2 = 174.15, 28df, p < .001$). Overall, the education level of WA amphetamine using detainees appeared to decrease and change significantly overtime.

Employment status

The demographic characteristic of employment contained four categories: employed full time; employed part-time; unemployed for various reasons; and workforce non-participant (stay-at-home mothers). This question was only added to the DUMA survey in 2001, and investigated the status of employment of amphetamine-using detainees, and if this had changed over time. The type of employment was cross-tabulated with the year (2001-2006) and a chi-square test was conducted to evaluate if there were any significant relationships between these variables, see Table 11 and Table 12.

Table 11

Positive amphetamine urine sample and employment status

Year	Employed full time	Employed part-time	Unemployed for various reasons	Workforce non-participant	Sample size
2001	11.4%	5.5%	67.1%	16%	237
2002	11.1%	8.2%	59.6%	21.2%	208
2003	15.3%	4.6%	57.1%	23.0%	196
2004	11.7%	10.1%	54.3%	23.9%	188
2005	21.0%	5.6%	49.7%	23.8%	43
2006	21.0%	6.3%	51.7%	21.0%	143
Sample size	1115				
Chi-Square	29.6				
Degrees of freedom	15				
p-value	.013				

Table 12

Self-reported amphetamine use 30 days prior to detainment and employment status

Year	Employed full time	Employed part-time	Unemployed for various reasons	Workforce non-participant	Sample size
2001	12.8%	7.1%	63.9%	16.2%	382
2002	13.3%	8.3%	60.0%	18.4%	375
2003	14.4%	6.9%	57.7%	21.0%	305
2004	15.0%	10.5%	52.7%	21.7%	313
2005	21.2%	8.1%	46.9%	23.8%	273
2006	20.3%	7.6%	55.0%	17.1%	251
Sample size	1899				
Chi-Square	32.6				
Degrees of freedom	15				
p-value	.005				

Table 11 and Table 12 show both sets of results for the objective indicator and the self-report measure, which indicated a large percentage of detainees, were unemployed for various reasons. The proportion of unemployed detainees appeared to decrease overtime; however, a peak was seen in 2006 for both indicators of amphetamine use. Also, on closer inspection, it was seen the number of detainees in full-time employment increased over time, especially between 2005 and 2006, ranging from nearly 12% (1999) to 21% (2005). In contrast the number of detainees employed part-time appeared to be unstable and did not follow a distinct trend. The number of detainees who reported being a workforce non-participant also increased over time and followed a general upward trend, except for a slight decline in 2006, ranging from 16% to 23%, for both indicators.

This was also reflected in the indicators of amphetamine use, which found these changes in the data to be significant. A chi-square result revealed a statistically significant result between the categories of employment and time for the objective measure of amphetamine use ($\chi^2 = 29.6, 15df, p = .013$). This was also the case for the self-reported measure of amphetamine use ($\chi^2 = 32.6, 15df, p = .005$). Overall, these results suggested that the change in employment trends for amphetamine using detainees were significant, with a large but declining proportion of these detainees unemployed for various reasons. The most significant difference appeared in the increase in the percentage of detainees engaged in full-time employment, between 2005 and 2006.

Research question three: *Alleged offences*

This section describes the alleged offences committed by WA amphetamine using detainees between 1999 and 2006. These are compared with the offences committed by detainees who are amphetamine non-users. As mentioned previously in Chapter 2, offences were categorised as per the Australian Standard Offence

Classification. Initially 15 offence types were examined as well as the two broad types of offences (referred to as the unmodified Table 13 - 17 offence classifications in total) (Australian Bureau of Statistics, 2007). Seventeen chi-square tests were individually performed to compare the proportion of amphetamine users and non-users committing each offence (see Table 14). This analysis statistically tested if amphetamine users committed significantly more or less of particular offences compared to amphetamine non-using detainees over the period between 1999 and 2006, using both amphetamine use indicators.

Table 13

Amphetamine use indicators and types of offences committed, as per ASOC classification

ASOC offences	Urinalysis indicator					Used amphetamines in the past 30 days				
	Users (positive)	Non-users (negative)	χ^2	DF	p-value	Self-reported users	Self-reported non-users	χ^2	DF	p-value
1. Homicide	0.2%	0.3%	.916	1	.339	.1%	.3%	3.251	1	0.71
2. Acts intended to cause injury	8.6%	13.8%	21.673	1	<.001	9.5%	12.8%	13.559	1	<.001
3. Sexual assault & related offences	.5%	2.2%	16.035	1	<.001	.4%	2.3%	32.329	1	<.001
4. Dangerous or Negligent Acts Endangering Persons	2.0%	1.7%	.600	1	.438	2.1%	1.9%	.320	1	.571
5. Abduction & Related Offences	1.1%	2.9%	11.918	1	.001	1.7%	3.1%	11.349	4	.001
6. Robbery, Extortion & Related Offences	7.0%	4.9%	7.417	1	0.006	6.7%	4.3%	14.568	1	<.001
7. Unlawful Entry with Intent/Burglary, Break & Enter	8.2%	4.9%	15.615	1	<.001	8.4%	4.5%	31.544	1	<.001
8. Theft & Related Offences	24.0%	14.6%	50.443	1	<.001	23.5%	13.9%	78.589	1	<.001
9. Deception & Related Offences	5.1%	4.9%	.151	1	.697	5.3%	5.1%	.155	1	.694
10. Illicit Drug Offences	16.9%	7.2%	83.898	1	<.001	17.0%	7.1%	120.724	1	<.001
11. Weapons & Explosives Offences	4.1%	3.1%	2.687	1	.101	5.0%	2.8%	16.733	1	<.001
12. Property Damage & Environmental Pollution	3.7%	4.7%	1.986	1	.159	3.4%	4.8%	6.041	1	.014
13. Public Order Offences	6.5%	14.0%	47.139	1	<.001	8.3%	13.7%	37.433	1	<.001
14. Road Traffic & Motor Vehicle Regulatory Offences	19.5%	16.9%	3.772	1	.052	18.0%	19.3%	1.505	1	.220
15. Offences Against Justice Procedures, Government Security & Government Operations (breach)	56.0%	53.6%	1.978	1	.160	54.1%	52.0%	2.271	1	.132
Offences against person	16.4%	23.3%	24.707	1	<.001	17.4%	21.9%	16.131	1	<.001
Offences against property	34.5%	25.8%	31.091	1	<.001	34.6%	25.0%	56.087	1	<.001

Firstly considering the two broad classes of offences, as seen from Table 13, for both amphetamine indicators the results revealed that detainees who used amphetamines committed more offences against property, compared with non-using detainees who committed more offences against person. Specifically, amongst detainees who self-reported amphetamine use 34.6% committed property offences compared with 25% of self-reported non-users. In contrast, amongst detainees who self-reported amphetamine use 17.4% committed offences against a person compared with 21.9% of self-reported non-users. The chi-square results indicated these differences were statistically significant. That is, self-reported amphetamine users were significantly more likely to be detained for offences against property than self-reported non-users ($\chi^2 = 56.087, 1df, p < .001$) whereas self-reported non-users were significantly more likely to be detained for offences against a person than self-reported users ($\chi^2 = 16.131, 1df, p < .001$). The comparisons using the objective urinalysis indicator of amphetamine use confirmed these results. That is, 34.5% of detainees with a positive amphetamine urinalysis result were charged with offences against property compared with 25.8% of detainees with a negative amphetamine urinalysis result which was statistically significant ($\chi^2 = 31.091, 1df, p < .001$). Also, 16.4% of detainees with a positive amphetamine urinalysis result were charged with offences against a person compared with 23.3% of detainees with a negative amphetamine urinalysis result which was statistically significant ($\chi^2 = 24.707, 1df, p < .001$).

Table 13 presented the eight individual classes of offences and the two categories of offences (person or property) committed by amphetamine-using detainees and amphetamine non-using detainees, which found significant differences between the two indicators of amphetamine use. Eight consistent results across both indicators of amphetamine use, including the two major categories existed, as detailed below in Table 14.

Table 14

ASOC offences commonly committed by a sample of WA amphetamine-using and amphetamine non-using detainees (1999-2006).

ASOC Offence	Results
Acts intended to cause injury	Most often amphetamine non-users for both indicators
Sexual assault & related offences	Most often amphetamine non-users for both indicators
Abduction & related offences	Most often amphetamine non-users for both indicators
Robbery, extortion & related offences	Most often amphetamine non-users for both indicators
Unlawful entry with intent/burglary, break & enter	Most often amphetamine users for both indicators
Theft & related offences	Most often amphetamine users for both indicators
Illicit drug offences	Most often amphetamine users for both indicators
Public order Offences	Most often amphetamine non-users for both indicators
Offences against person	Most often amphetamine non-users for both indicators
Offences against Property	Most often amphetamine users for both indicators

In addition to the eight individual classes of offences, road traffic and motor vehicle regulatory offences were also marginally significant for the independent measure ($\chi^2 = 3.772$, $1df$, $p = .052$). Also, there were two additional offences where the results were less clear, in that statistically significant differences were found when employing the self-report indicator

but not when using the objective indicator of amphetamine use, for both weapons and explosives offences and property damage and environmental pollution offences.

Table 13 also showed over 50% of all detainees committed offences against justice procedures, government security and government operations, that is, breach type offences. A chi-square result also showed no significant difference existed between the amphetamine using and non-amphetamine using detainees for both indicators of amphetamine use for this class of offence (urinalysis $\chi^2 = 1.978$, $1df$, $p = .160$) (previous 30 day use $\chi^2 = 2.27$, $1df$, $p = .132$). Thus, it appeared this offence may be masking potentially important information. Therefore, the dataset was modified to remove ASOC classification number 15 for offences against justice procedures, government security and government operations (breach-type offences) and substituted with the top three offences for which the detainees were charged in the past 12 months as a proxy for the mostly likely offence/s to which the breach related, as detailed in Chapter 2. The removal of this offence allowed for the breach-type offences to be recoded back to the most likely initial offence committed in the preceding 12 months to detainment. The series of chi-square tests were repeated for this modified set of offences. Table 15 presents the results from this analysis.

Table 15

Amphetamine use indicators and types of offences committed, as per modified ASOC classification

ASOC offences - MODIFIED	Urinalysis indicator					Used amphetamines in the past 30 days				
	Users (positive)	Non-users (negative)	χ^2	DF	P-value	Self-reported users	Self-reported non-users	χ^2	DF	P-value
1. Homicide	.2%	.3%	.245	1	.621	.1%	.3%	1.984	1	.159
2. Acts intended to cause injury	12.9%	18.5%	19.233	1	<.001	14.6%	16.5%	3.593	1	.058
3. Sexual assault & related offences	.6%	2.4%	14.724	1	<.001	.5%	2.5%	32.478	1	<.001
4. Dangerous or Negligent Acts Endangering Persons	2.5%	2.8%	.328	1	.567	2.7%	2.7%	.001	1	.978
5. Abduction & Related Offences	1.2%	3.0%	11.969	1	.001	1.7%	3.3%	12.462	1	<.001
6. Robbery, Extortion & Related Offences	8.9%	5.9%	11.481	1	.001	8.5%	5.1%	23.259	1	<.001
7. Unlawful Entry with Intent/Burglary, Break & Enter	10.9%	6.9%	17.932	1	<.001	11.4%	6.1%	44.767	1	<.001
8. Theft & Related Offences	31.9%	19.3%	74.655	1	<.001	31.0%	17.5%	126.607	1	<.001
9. Deception & Related Offences	7.0%	6.2%	.925	1	.336	7.7%	5.8%	6.878	1	.009
10. Illicit Drug Offences	23.0%	10.1%	112.446	1	<.001	23.4%	9.0%	197.835	1	<.001
11. Weapons & Explosives Offences	5.8%	3.8%	8.057	1	.005	6.6%	3.1%	33.513	1	<.001
12. Property Damage & Environmental Pollution	5.0%	6.3%	2.713	1	.100	5.1%	5.9%	1.367	1	.242
13. Public Order Offences	9.6%	18.5%	51.420	1	<.001	11.9%	17.6%	32.083	1	<.001
14. Road Traffic & Motor Vehicle Regulatory Offences	21.8%	27.3%	14.332	1	<.001	24.6%	23.6%	.630	1	.427
Offences against person	22.3%	28.7%	17.879	1	<.001	23.8%	26.2%	4.101	1	.043
Offences against property	43.9%	32.4%	48.388	1	<.001	44.5%	30.1%	112.324	1	<.001

For both amphetamine use indicators, the results were consistent with each other when looking at the two broad classes of offences – against property and a person. However, this was not entirely consistent when examining the findings for individual offences when compared to Table 13. Almost 44% of detainees who tested positive for amphetamine use were charged with property offences compared to only 32.4% of detainees who returned a negative amphetamine urine sample. The chi-square result revealed that this was a significant difference between these two groups of detainees ($\chi^2 = 48.388$, df , $p < .001$). These results were also similar for self-reported amphetamine using detainees, who were arrested for more offences against property (44.5%) compared with self-reported amphetamine non-using detainees (30.1%). The difference between these two groups of detainees was significant ($\chi^2 = 112.324$, df , $p < .001$). In contrast, a higher portion of self-reported amphetamine non-using detainees were arrested for property offences (26.2%) compared with self-reported amphetamine using detainees (23.8%). The difference between these two groups of detainees was also significant ($\chi^2 = 4.101$, df , $p < .043$). Overall, the results presented indicated amphetamine using detainees committed more property offences than detainees who did not use amphetamines, whereas amphetamine non-using detainees committed more offences against a person.

With the removal of the ASOC category of breach-type offences, the findings remained consistent with those reported in Table 13 except for five variations. These were: acts intended to cause injury; deception and related offences; weapons and explosives offences; property damage and environmental pollution; and road traffic and motor vehicle regulatory offences.

As seen in Table 15 offences related to acts intended to cause injury were no longer significant at a 5% level of significance for the self-reported measure. The percentage of detainees charged with this individual offence increased from 9.5% to 14.6% for

amphetamine users and from 12.8% to 16.5% for non-users resulting in a non-significant although marginally significant result between the two groups ($\chi^2 = 3.593$, $1df$, $p = .058$). Deception and related offences also differed after the removal of breach-type offences. This offence became statistically significant for the self-report measure ($\chi^2 = 6.878$, $1df$, $p = .009$), but still remained insignificant for the independent measure, consistent with Table 13. The results for weapons and explosives offences also differed in Table 15, whereby the independent measure became significant ($\chi^2 = 8.057$, $1df$, $p = .005$), while the self-report measure remained consistent. Offences related to property damage and environmental pollution were no longer significant in Table 14 for the self-reported measure, after the removal of breach-type offences ($\chi^2 = 1.367$, $1df$, $p = .242$), however, the independent indicator remained consistent with the results found in Table 13. Lastly, offences related to traffic and motor vehicle regulatory reported a significant difference for the independent indicator, which was inconsistent with Table 13 ($\chi^2 = 14.332$, $1df$, $p < .001$). This proportion of detainees increased from 19.5% to 21.8% for the independent indicator. And so, several of the offences remained consistent and statistically significant across both Tables 13 and 15, which included: sexual assault and related offences; abduction and related offences; robbery, extortion and related offences; unlawful entry with intent/burglary, break and enter; theft and related offences; illicit drug offences; public order offences; offences against person and; offences against property.

Summary

Chapter 5 presented the results pertaining to the trends in amphetamine use and the demographic profile of WA amphetamine using detainees at the East Perth lock-up from 1999 to 2006. Five indicators were initially examined using a Kendall's tau_b, and two were selected based on the strength of the correlation, to indicate amphetamine use by detainees.

The independent measure was the urine sample and the self-report measure was determined by amphetamine use in the 30 days prior to being detained. These two measures were used to ascertain if there had been a change in amphetamine use levels from 1999 to 2006. Both measures, self-report and objective, steadily increased over three years, from 1999 to 2001. Thereafter, both indicators tended to follow a slight downward trend, around small peaks, however, these indicators peaked again in 2003 (positive urine sample) and 2005 respectively (self-report). In addition, a significant change occurred in both indicators of amphetamine use overtime.

Using the two indicators of amphetamine use, a profile of amphetamine-using detainees was established, from 1999 to 2006. A majority of amphetamine users were found to be male. Almost 90% of self-reported amphetamine using detainees and 80% of detainees who returned a positive urine sample were male. A large proportion of amphetamine-using detainees were aged between 18 to 35 years. However, the mean age of detainees appeared to increase over time for both indicators, changing from 25 to 29 years. Most notably, the age category of 45 plus years increased greatly on a relative basis over time. Also, a majority of detainees did not report being from an ATSI origin. This result remained stable over time, with no significant differences found. This was also similar for the relationship status of amphetamine-using detainees, with a majority not in an intimate relationship. Slight variations were found in this demographic variable over time, which were significant. Amphetamine-using detainees also tended to live at another person's residence. The demographic variable of education also showed interesting results, with the general level of education declining overtime for amphetamine using detainees. Particularly, detainees who had incomplete TAFE or university education, appeared to increase overtime, as did the proportion of detainees who had attained a Year 10 or less including never went to school. The status of employment, particularly unemployed for various reasons appeared to decrease

over time while the portion of full-time employed detainees increased over the eight-year period.

The results presented in Tables 13 and 15 showed detained WA amphetamine users committed more offences against property than person, compared to amphetamine non-using detainees who committed more offences against person. These results were consistent across both sets of analyses, with the two types of offences (person and property) revealing significant differences between these groups of detainees for both indicators of amphetamine use. As seen from the shading in Table 13, there were eight significant differences found for the types of offences committed for both the independent measure and the self-reported measure and. Two significant differences were peculiar, however, to the self-reported measure of amphetamine use, offences related to weapons and explosives and offences related to property damage and environmental pollution. This was found to be similar for the results reported in Table 15, along with eight significant differences found between both indicators. Here, there were two types of offences that were peculiar to the independent measure and were significant; offences related to acts intended to cause injury and offences related to road traffic and motor vehicle regulatory offences. Therefore, the main results shown in Tables 13 and 15, regard amphetamine users as those who commit more property type offences, as opposed to amphetamine non-users who committed more offences against person. Therefore, amphetamine using detainees were more likely to be significantly charged with offences related to: robbery, extortion & related offences; unlawful entry with intent/burglary, break and enter; theft and related offences; illicit drug offences; weapons and explosives offences; and offences against property. Compared with amphetamine-using detainees who were less likely to be significantly charged with related to: acts intended to cause injury; sexual assault and related offences; abduction and related offences; public order offences and; offences against the person.

Chapter 6: Discussion

This study examined amphetamine use among WA detainees over an eight-year period. More specifically it identified changes in amphetamine use; in the profile of amphetamine users; and the types of alleged offences committed by amphetamine-using detainees from 1999 to 2006. This chapter is structured accordingly into three parts to present the study's findings and discuss how these findings compare and contrast to research findings in the literature on amphetamine use.

Research question 1: *Amphetamine use*

The findings derived from two markers of amphetamine use (self-reports & positive urine samples) by WA detainees indicated amphetamine use increased significantly from 1999- 2006. An upward trend of detainees who used amphetamines peaked in 2001 and then declined after 2001 for both markers of amphetamine use. An upturn was evident in 2003 for detainees who produced a positive amphetamine urine sample and in 2005 for detainees who reported amphetamine use. Thereafter, amphetamine use among detainees mostly declined and fluctuation was minimal. The findings also indicated there were consistently more self-reported amphetamine users compared to detainees who produced a positive amphetamine urine sample. The changes in the trend of detainee amphetamine use were significant overtime, which can most likely be attributed to the heroin drought, as discussed in chapter two.

There are several possible reasons why amphetamine use by detainees surged in WA. These reasons included a decline in the availability of heroin, a reduction in purity of the available heroin, and increased policing initiatives. In 2001, poppy cultivation world-wide was at an all-time low level; with a 35% decrease in production occurring shortly after the Taliban took control in Afghanistan (Welch, 2008). In addition, between 2000 and 2001

world production levels of poppies had actually decreased by 65%, therefore hindering the supply to Australian drug syndicates (Cabinet Office of NSW Drug Policy, 2002). One outcome of the heroin drought was an increased availability of amphetamines (Welch).

The increased availability of amphetamines, purity levels also appeared to have increased. The 2003 Illicit Drug Reporting System (IDRS) reported an average purity of WA methamphetamine seizures ranging from 15% to 23%, with the highest purity found between 2001 and 2002 (Breen, et al.). This suggests amphetamine use was a popular choice of drug, as prices of amphetamines were lower, purity was higher and the drug was more readily available than heroin. This may explain the results obtained in this research that being the increased use of amphetamine use among WA detainees between 1999 and 2001.

Degenhardt, Conroy, Gilmour, and Hall (2005) investigated the effects of the reduced availability of heroin in New South Wales (NSW). Drug users, law enforcement and health professionals in NSW noted the heroin reduction from January to April 2001. A significant decrease by 43% occurred in the number of non-fatal heroin overdoses between January 1995 and June 2003 (Degenhardt et al.). However, Degenhardt et al. noted the deaths attributed to cocaine, methadone and methamphetamine were unwavering in the NSW area. They also found a significant decrease in the number of fatalities from overdose among younger drug users, and younger drug users discontinued with amphetamine use or lessened their use, whereas older amphetamine users remained stable. The NSW study indicated a reduction of the availability of heroin. In 1999, in NSW alone, 3000 incidences of heroin use were reported to police. In 2001 there was a reported 1100 incidences of heroin use; and in 2006 a mere 600 incidences of heroin use were reported (Welch, 2008).

The decrease in heroin supply between 1999 and 2001 in Australia may partially be attributed to an increase in police and customs seizures (Cabinet Office of NSW Drug Policy, 2002). Between 2000 and 2001, more than 480 kilos of heroin were seized in police raids

across the nation. In NSW alone 223 kilos of heroin was also seized. These years were considered the boom of amphetamine use for Australians among both non-detained & detained populations (Cabinet Office of NSW Drug Policy). Furthermore, government procedures may have been a factor affecting the decline in levels of available heroin. Further, the installation of an X-ray facility intended for shipping containers may also have disrupted the supply of heroin into Australia. The X-ray facility, valued at \$15,000,000, is located in Sydney and has operated since March 2002 (Cabinet Office of NSW Drug Policy). This facility had the potential to X-ray up to 100 shipping containers daily (Cabinet Office of NSW Drug Policy).

In 2000 the Australian Illicit Drug Reporting System (IDRS) reported the average purity of heroin, nation-wide was nearly 53%. Compared with results from 1999, the report also noted an increase in the availability and use of amphetamines across the country. The report also stated there had been a significant rise in the purity of amphetamines from 12% in 1999 to 23% in 2000 (Australian Illicit Drug Reporting System). Also, the 2003 IDRS reported the heroin market in Australia was unwavering, although, the price of heroin, its purity and availability had not returned to pre-heroin drought levels, and it was still the most expensive in WA at \$550 per gram (Breen et al.). The lack of availability and low purity of heroin in WA has been reported to have paved the way for a cheaper and more readily available drug, hence the escalation of amphetamine use in WA, spilling over into the detainee population.

The National Drug and Alcohol Research Centre (NDARC) (2004) suggested the heroin shortage could also be attributed to policing, which was aimed at the international drug circuit, specifically the highest level of drug trafficking. NDARC further implied the Australian heroin market was not ideal, as it was only generating small revenue due to low prices, high levels of purity, and several importation seizures. NDARC further stated an

increase in funds to the Australian Federal Police, Australian Customs Services and the National Illicit Drug Strategy further discouraged the importation of heroin. Thus, NDARC reported it was the culmination of these factors, which also influenced the heroin market in the 1990s, which eventually saw the rise of amphetamine use in Australia.

NDARC (2004) suggested the decreased amounts of heroin reaching Australia between late 1999 and early 2000 could be accredited to the work performed by agencies such as the AFP. Previously, the AFP and other policing entities centred investigations on drug supply and production, primarily on larger international importation networks. This focus shifted somewhat and the AFP began to target local Australian manufacturers and distributors of amphetamine (Keelty, 2005).

The increase in amphetamine use has also been partly due to the link between domestic producers and distributors of amphetamines, which has been enhanced significantly with the effortless access to the Internet (Keelty, 2005). Keelty noted the Internet has been actively used to support drug activity, by advertising and selling, and as a link between manufacturers, suppliers and customers. This method of illicit drug operation is considered by sellers to be a 'safer' means to sell drugs, as drug activity is not occurring in public places and not arousing public suspicion (Keelty). Furthermore, the Internet is used to provide information about the manufacture of illicit drugs. Primarily, recipes and information concerning manufacture of amphetamines are available to the general public, and exchanged all over the world. Such information also relates to precursor material, buying information and the sale of drug-making paraphernalia. The major implication of the Internet facilitating illicit drug use and supply is the nature by which information is relayed between parties. Information and monetary transactions are usually difficult to trace, as there is not always a permanent record of such dealings (Keelty). The relevance of the internet to the current study

demonstrates that as technology evolves, as too the methods of obtaining amphetamines (Keelty).

Research question 2: *Demographics*

Research question two explored seven demographic characteristics of detainees who self-reported amphetamine use and provided an amphetamine-positive urine sample in order to build a working profile of amphetamine users. These seven characteristics were: gender; age; ATSI origin; relationship status; residential status; education level; and employment status.

These profile characteristics were analysed in order to gain a better understanding of the profile of WA amphetamine-using detainees. The findings from the current research mostly suggest the profile of amphetamine using detainees did change over the eight-year period. This section focuses on the seven individual characteristics used to build the profile, and how this compares to other existing research.

Gender

Findings from this research showed most amphetamine-using detainees were male. This was not surprising given the sample of detainees was largely male. The findings were, however, significant for detainees who self-reported amphetamine use 30 days prior to detainment. A difference was therefore found over-time between self-reported male and female detainees.

The findings from the current study are similar to the results of the National Drug Strategy Household Survey (NDSHS), an Australia-wide survey on drug issues, drug-related understanding, drug knowledge, and illicit drug behaviours of a sample of the Australian general population aged over 14 years (Australian Institute of Health & Welfare, 1999). The

NDSHS data collected between 1998 and 2007 showed males as a majority of participants who had used an amphetamine substance at least once.

Table 15

The National Drugs Strategy Household Survey overview: used an amphetamine substance at least once.

Study	Males	Females
NDSHS 1998	10.9%	6.7%
NDSHS 2001	10.6%	7.3%
NDSHS 2004	11%	7.3%
NDSHS 2007	7.7%	4.9%

(Australian Institute of Health & Welfare, 1999, 2002, 2005 & 2008).

Age

The second demographic characteristic of the detainee profile examined was age. The findings from this research indicated amphetamine-using detainees were mostly aged between 18 and 34 years. The age of amphetamine-using detainees increased overtime, with more detainees falling into the higher age brackets as the study progressed from 1999 to 2006. Amphetamine use of detainees in the age category of 45 plus years increased overtime, with more detainees aged 45 years or more. This increase was not significant in comparison to the other age categories, but was significant within the category itself. The two markers of amphetamine use showed the change in the ages of amphetamine user overtimes were statistically significant as well. One reason for the ageing aspect of amphetamine-using

detainees was these samples of older detainees were repeat offenders, who continued to commit offences, year after year, therefore, ageing in the process.

The young age of a majority of amphetamine using detainees (18 to 34 years) can be explained by Klee (1998). Klee (1998) suggested the time between adolescence and adulthood is a rather stressful period, in which a developing youth begins to form and navigate their way around, attempting to fit into a society outside of school and the family unit. Usually, with personal achievement being the central need to be better than the previous generation (Klee). It is this stress and the need for upward social mobility, however, that pushes some youths to realise that they may not achieve this actualisation, thus, they begin to look for alternative options to actualise success. As Klee (1998, p. 39) stated amphetamine users use the drug to “preserve self-esteem, ward off depression, and increase their security by an assured place within a supportive group of people who are similarly affected”. Therefore, youths and young adult detainees typically use more amphetamines compared to detainees in older age categories. Additionally, the National Drug Strategy Household Surveys (NDSHS) showed more younger people had used amphetamine compared to older non-detained Australians (Australian Institute of Health & Welfare, 1999, 2002, 2005 & 2008).

In relation to the attempt to fit into society, Li, Zhou, and Stanton (2002) explored the initiation of illicit drug use by young adults, which typically occur in teenage years and young adulthood. The initiation of drug use normally occurs in a social context; whether at home or out with friends, people commonly use illicit drugs in the company of others a majority of the time. Li et al. found drug use initiation occurred usually at a friend's home 65% of the time and with other drug users (83%). More than 70% of respondents in the Li et al. study reported their first time drug use was supplied free, with 90% of respondents

reporting experimentation as the main reason for trying illicit drugs, 44% were encouraged by friends, and thirdly, 42% viewed illicit drug use as a form of relaxation (Li et al.).

Li, Zhou, and Stanton (2002) also found their young adult respondents had used legal drugs and alcohol prior to experimenting with illicit drugs. Nearly 90% of respondents had a history of regular smoking, 49% had drunk alcohol and 51% had committed deviant behaviour preceding drug initiation. A majority of respondents also reported 90% of their neighbours and 88% of their friends consumed illicit drugs (Li et al.). Li et al. also found most criminal behaviour preceded drug use and that the age of illicit drug use initiation occurred earlier for those involved in criminal activity. The Li et al. study supports the current research by identifying young adulthood as a period of time where illicit drugs are used more commonly than any other age group, as the current research found a majority of the sample of amphetamine-using detainees were aged between 18 and 34 years.

Although traumatic incidents were not examined in the current study, it could however be considered as a possible reason for amphetamine use. Considering the current DUMA data presented an increased number of female detainees, it may be worth considering traumatic events which occurred in a detainee's life and subsequent amphetamine use. Prichard and Payne (2005) found juvenile offenders who had experienced a history of abuse and neglect, engaged in both drug use and criminal behaviour. The sample was comprised of both female and male juvenile offenders. Prichard and Payne found 18% of juveniles were left alone for extended periods as children, 33% of juveniles reported occurrences of physical abuse and another 27% reported emotional abuse. Of the incidences that occurred, either a parent or caregiver committed the acts of abuse (Prichard & Payne). In addition, juveniles who reported regular substance use within the six months prior to detainment reported histories of neglect, with violent and emotional abuse. More than 50% of all juveniles admitted to ever using amphetamines. Juveniles who reported abuse also admitted to the

early onset of illicit drug use, when compared to juveniles who reported no physical or emotional abuse. The average age of illicit substance use initiation for emotionally abused juveniles was 10.6 years, 10.4 years for violent abuse and 10.2 years for juveniles who admitted neglect (Prichard & Payne). These results showed juveniles who reported abuse and neglect were more likely to use drugs more frequently than those who did not. This could suggest childhood traumas such as physical abuse can pre-empt criminal offending and illicit substance use (Prichard & Payne).

Furthermore, Johnson (2004) surveyed Australian female prisoners in the equivalent study of the male Drug Use Careers of Offenders (DUCO) study. Depression, anxiety, and sexual assault were the main reasons female prisoners gave for using illicit drugs (including amphetamines). Illicit drug use (amphetamines included) were attributed to childhood sexual incidents and physical abuse, mental health issues, the shame of offending, being the primary care giver to children and the effects of poverty and single parenting. Johnson found the previously mentioned issues and child-hood incidents were more common among prisoners who had used illicit drugs.

Kraemer, Gately, and Kessell (2009) also identified prisoner health issues in WA prisons, while also exploring sexual assault trauma of WA female prisoners. By 16 years of age, more than 50% of all incarcerated female prisoners reported incidences of sexually assault (Kraemer et al.). Almost 58% of the female prisoners assaulted were aged between the ages of three to 15 years old when the incidences took place (Kraemer et al.). In addition, 60% of female prisoners had tried amphetamines, and of those same females, 50% had been sexually assaulted. Therefore, it could be suggested the large number of young (18-24 & 25-34) detainee amphetamine-users could have experienced early emotional or physical trauma.

ATSI origin

The findings from this study indicated a majority of amphetamine-using detainees did not identify as being of Aboriginal or Torres Strait Islander descent (ATSI). Detainees who tested positive to amphetamine use with the urine sample were, however, more likely to be of ATSI descent, compared to those who self-reported amphetamine use. The differences between the two markers of amphetamine use were, however, not significant. These results differed to those reported by the HoPE project which found a slightly higher percentage of Aboriginal amphetamine users.

The Health of Prisoner Evaluation (HoPE) project was conducted to identify WA prisoner health issues, both psychological and physical issues (Kraemer, Gately, & Kessell, 2009). This project has been trialled at two WA prisons and surveyed prisoners on personal health issues such as: blood pressure, hospital visits and illnesses, mental health history, prescribed treatment, psychiatric hospital admissions and suicide ideation, along with drug use, use patterns, intravenous drug use and drug knowledge (Kraemer et al.). The 2008 HoPE survey found many prisoners admitted to using high levels of illicit drugs and had self-reported illicit drug dependence. More than 40% of indigenous females admitted amphetamine dependence compared to 15% of non-Indigenous females. Nearly 20% of Indigenous males admitted amphetamine dependence (Kraemer, Gately, & Kessell, 2009). The relevance to the current study shows WA Indigenous detainees are less likely to report amphetamine use when compared to WA prisoners.

The 2004-05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) conducted one of the largest health surveys of Indigenous Australians, with over 10,439 participants (Australian Bureau of Statistics (ABS), 2006). This survey gathered information regarding health-related issues, including health status, risk factors and actions, and socio-economic circumstances of Indigenous Australians. In 2001, approximately 2.4%

(458,500) of the total Australian population identified as being Indigenous, and 14% (65,900) of the total population in WA (ABS, 2006). Findings showed in 2002, 25% of participants had used an illicit substance in the 12 months prior to the survey which increased overtime to 28% in 2004-05. Another 22% had used an illicit substance at least once in their lifetime. Amphetamines were the second most commonly used drug, with 7% of participants reporting use in 2003 (ABS, 2006). These findings showed Indigenous Australians accounted for only a small portion of amphetamine users, whether a detainee or not. This is relevant to the current study as it agrees with the present results and supports the suggestion WA Indigenous detainees did not commonly use amphetamines.

In addition, a comprehensive national study of Aboriginal illicit drug use was conducted. The 1994 National Drug Strategy Household Survey: Urban Aboriginal and Torres Strait Islander Peoples Supplement surveyed 2,943 non-regional Aboriginal respondents (Australian Institute of Health and Welfare, 1995). This survey found Aboriginal respondents were most likely to have tried illicit drugs, with 19% reporting having tried at least one illicit drug other than cannabis. Another 6% of respondents reported being a current user of at least one other illicit drug (Australian Institute of Health and Welfare, 1995). Similarly, these findings from the 1994 National Drug Strategy Household Survey: Urban Aboriginal and Torres Strait Islander Peoples Supplement showed Indigenous Australians accounted for only a minimal number of amphetamine users, similar to the current study.

Relationship status

This study found a majority of amphetamine-using detainees were single and not in an intimate relationship. This result remained consistent overtime, while also being significant for both markers of amphetamine use. Also, this age group tends to be associated with fun, no commitments, and coming of age (Klee, 1998). This result is also typical, as relationships

often do not survive the disrupted and extreme behaviour that can be associated with regular amphetamine use (Lineberry & Bostwick, 2006). Therefore, it can be suggested a single and non-committed relationship status allows drug use to continue, unrestricted and without interference. Similarly, social networks may not always be able to sustain the erratic behaviour and friendships disappear as drug use escalates and occupies more of the individual's time and interest (Lineberry & Bostwick).

The 1998 National Drug Strategy Household Survey (NDSHS) found the relationship status of reported amphetamine users to commonly be single and not in an intimate relationship. The NDSHS reported amphetamine ever use, by a sample of non-detained Australians, were more likely to be single (Australian Institute of Health and Welfare, 1999). Therefore, this suggests amphetamine use could be associated with a single and unrestricted lifestyle in both detained and non-detained samples.

Residential status

The residential status of a detainee is an important demographic characteristic, as it is an indicator of stability in the detainee's life, demonstrating the ability to either support a mortgage or rent (Kraemer, Gately & Kessell, 2009). The findings from the current research indicated a majority of WA amphetamine-using detainees lived at another person's residence, which was only significant for the self-reported maker. The young age (18-34 years) of a majority of amphetamine using detainees could possibly indicate a number of detainees still resided with their parents, or friends, and were therefore not homeless.

Also, female amphetamine-using detainees are a unique sample within this study, although minimal in number compared to male detainees, their living circumstances can vary to that of amphetamine-using male detainees. Johnson (2004) found 30% of female prisoners were living in public housing provided by the Australian government and another 5% were

living on the street. However, 58% of imprisoned females rented or owned their own house/apartment, and only 3% lived at another person's house (Johnson). Johnson found more than 70% of females had at least one child and the HoPE survey reported almost one third of prisoners have one or more children (Kraemer, Gately & Kessell, 2009).

Education level

This study found the education levels of amphetamine-using detainees had decreased overtime. These findings indicated the level of education attained by these detainees was minimal and restricted to a Year 10 or less. Likewise, the number of amphetamine-using detainees who attained a TAFE or university education also decreased. The differences between education levels overtime for both markers were statistically significant. Whereas the 1998 National Drug Strategy Household Survey found the non-detained Australian sample who had used an amphetamine at least once in their life, were more likely to have attained a HSC or equivalent (Australian Institute of Health and Welfare, 1999). This was in contrast to the WA detainees in this research who had typically achieved an education level of less than Year 10.

Despite the decreasing levels of education by WA amphetamine-using detainees' overtime, the Australian Bureau of Statistics (2007) recorded an increase in the frequency of high school attendance in WA. Between 1990 and 2005, school age participation rates for full-time students increased from 86% to 93% for 15 year olds, from 66% to 78% for 16 year olds and from 32% to 42% for 17 year olds respectively (Marks & Fleming, 1999). This appears not to have been the case with the detainees who passed through the East Perth lock-up between 1999 and 2006.

Between 1990 and 2000 the education participation rate for WA (aged 15-24 years) increased by 29.6% (n = 41,273 students) (Australian Bureau of Statistics, 2007). In 2001,

59% (14,500) of WA adults aged 25 years had completed Year 12 or similar (Australian Bureau of Statistics, 2007). Another 31% (7,500) had completed Years 10 or 11, and 4% (940) had completed Year 9 or below (Australian Bureau of Statistics, 2007). Although education participation rates significantly improved in WA, this did not appear to apply to amphetamine-using detainees who participated in this research.

Similar to the non-detained Australian population, Neale (2004) reported 53% of the UK mixed prisoners and non-detained illicit drug users held a formal qualification and 11% reported some sort of training or education in the previous six months prior to the commencement of the study, which examined gender and illicit drug use. Comparable to the current study, Neale found a relationship between illicit drug user and low levels of education achievement, as 40% of participants reported being under-educated. This could suggest education and schooling retention could be associated with illicit drug use and criminal behaviour.

Oboti, Hubbard, and Anthony (1999) also examined education levels and drug use by African Americans intravenous drug-users. This study approximated the risk of ever having injected a drug and not completing high school, in comparison to participants who had a high school diploma and went to college (Oboti et al.). Participants included 389 adults with a history of IDU and another sample who resided in the same area as 2253 adults with no history of IDU. Oboti et al. found those who had left high school before graduation, were two times more likely to have injected drugs as compared to those who completed high school. This result implies a low level of education could be associated with drug use at some level, regardless of whether the population is detained. This low level of education could also impinge on employment prospects.

Kraemer, Gately, and Kessell (2009) found a majority of WA prisoners had less than a Year 10 level of education, and less than 10% of both male and female prisoners had

completed either university or a TAFE certificate. Kraemer et al. did acknowledge, however, that the less than 10% of both TAFE and university graduates may have completed tertiary education while in prison. Although this shows some prisoners have had access to formal education. Though it does not appear to account for the majority who did not complete Year 10 nor does it distract from the evidence that shows more prisoners and detainees who use amphetamines are less likely to have completed Year 10, when compared to the non-detained Australian population.

On the other hand, Johnson (2004) examined the Australian female prisoner population, known as the DUCO study. This study found a majority (35%) of women actually held either a TAFE or a technical college certificate (Johnson). A further 23% had completed both primary school and year 10, and a further 10% has a university degree (Johnson) This evidence could suggest prisoners like detainees are commonly not educated beyond Year 10 (Oboti, 1999; Neale, 2004; Kraemer, Gately, & Kessell, 2009). This could lead to the assumption that females, as opposed to males, may be encouraged to remain in school or to pursue tertiary education in other states in Australia, aside from WA.

Employment status

Analysis conducted in this research found a majority of amphetamine-using detainees were unemployed. Unemployment levels did however decrease and detainees in full-time employment increased over time. The changes between the markers of amphetamine use and time were statistically significant. Neale (2004, p. 857) suggested “formal qualifications, employment and financial security all contribute to personal independence and enhance self-sufficiency and self-confidence...” Therefore, the combination of lack of employment and limited educational skills may affect amphetamine use and criminal behaviour.

In September 2000, the national Australian unemployment rate was 583,700 people over the age of 18 years, increasing in October 2001, to 685,800 unemployed persons, 532,900 in January 2005 and decreasing slightly in May 2006 with 532,600 employed people (Australian Bureau of Statistics, 2006). Hoffmann, Dufur, and Huang (2007) examined the concept of drug use linked to an increased tendency to quit a job. Hoffmann et al. suggested that a lack of education and qualification of some illicit drug users could be associated with a lack of motivation to pursue vocational success, and therefore, increase levels of unemployment. Hoffmann et al. also found the past year use of both marijuana and cocaine were predictors of the likelihood of quitting a job to take another or to move into short-term unemployment. The study also found marijuana users who had a limited number of years of experience and education, were more likely to shuffle from one job to another (Hoffmann et al.). The application to the current study suggested illicit drugs could have a considerable impact on employment, which is supported by the current study finding a majority of amphetamine-using detainees were unemployed.

Klee and Morris (1994) suggested the effects of amphetamine use allow for the interaction with others, which is required in order to preserve sociability within amphetamine-using groups. Participants were largely unemployed, therefore, it was essential social networks were utilised, in order to fill their days and validate their presence. As 77% of non-detained participants belonged to a social group of more than three people, and of these social groups, members were mostly unemployed, with acts of theft common and institutionalised within communities of high drug use. Klee and Morris (p. 384) suggested, “the energy, motivation and social cohesiveness provided by amphetamine use ensured a considerable level of accomplishment, enjoyment and success [when theft was committed]”. Therefore, criminal cohesiveness continues to discourage members from moving away from

the area, gaining sustainable and legitimate employment, to continue living in public housing near the school they attended, and interacting with the same school friends (Klee & Morris).

Neale (2004) found 11% of self-reported illicit drug users (male and female prisoners and non-detained participants) had undertaken some form of paid legal work, and another 16% had undertaken 'cash-in-hand' jobs. Neale found 89% of participants received a government benefit, which formed the largest part of their income. Participants also acquired income by other means: 44% of all respondents received money from loans, 8% begged for money and 4% engaged in prostitution. Females were also more likely than males to have received a government welfare payment (Neale).

Social disadvantage can be caused and exacerbated by unemployment. Edwards (2005) suggested the division of the 'haves' and 'have-nots' within society in relation to material and social success can increase criminal behaviour. Social deprivation (lack of employment/low levels of education) divided people between those that committed criminal offences and those who did not. Edwards (2005) went as far as stating the common characteristics of all people who commit crime are alcohol or other drug dependent, have poor education, experience a collapse of the family unit, and have been the victim of physical and sexual abuse as a child. The relevance of Klee and Morris (1994), Neale (2004), and Edwards, suggested socio-economic situations could possibly impact on illicit drug use. This was evident in the current research, finding a majority of WA amphetamine-using detainees appeared to be of a low socio-economic standard.

The next part of this thesis confirmed that those who use amphetamines are more likely to be arrested, be single, and have a lower level of education, and likely to receive government welfare. This can be attributed to a number of amphetamine users who move from experimenting with illicit drugs to becoming regular and habitual users. The increase in frequency of use may have unfavourable effects for some male and female users. However,

as Edwards elaborated, these circumstances do not always compel an individual to commit crime, but rather lay the foundation for a deviant drug-affected lifestyle.

Furthermore, Klee and Morris (1994) found most amphetamine users enjoyed the 'other' side of the coin in relation to non-economic rewards to amphetamine use. Klee and Morris found amphetamine users had the ability to increase self-esteem in deprived neighbourhoods by providing an outlet for aimlessness and boredom from a lack of employment. This occurred by increasing the participation in criminal behaviour, and in-turn building social networks and high valuation of one's accomplishments. Therefore, those who are unemployed indulge in criminal behaviour to obtain amphetamine and other illicit drugs. Klee and Morris relate to the current findings by providing a possible explanation for amphetamine use, even though the current study did not examine such aspects

Research question 3: *Alleged offences*

In this research amphetamine-using detainees were most likely to be apprehended for offences against property rather than offences against person. Initially, the findings showed a majority of amphetamine-using detainees were apprehended for breach-type offences. Once this offence was eliminated, and breach-type offences were recoded to the most likely initial offence committed, a new set of results were obtained. Amphetamine using detainees committed more ASOC offences related to (i) robbery (ii) unlawful entry (iii) drug offences and (iv) weapons and explosives charges, when compared to detainees who had not used amphetamines. There are several possible explanations as to why amphetamine using detainees committed high proportions of property offences. Goldstein's (1985) theory surrounding the types of offences commonly committed by people who use illicit drugs is applicable. Specifically, the findings from this study primarily related to *economic compulsive* offences, which referred to offences committed to obtain money and to sustain

illicit drug use (Goldstein). Therefore, property offences typically generated an income, which in turn allowed the detainee to obtain amphetamines. Thus, these findings confirmed that a large sample of WA detainees committed offences to satisfy financial needs.

Another possible explanation related to both ASOC offences of robbery and unlawful entry could be linked to new legislation, introduced on the 1st July 1999, regarding mandatory installation of car immobilisers in WA (Department of Transport, 2011). This legislation aimed to reduce car theft and increase car security. In 2004, Operation Bounce Back was also introduced to decrease car theft, and increase public education and incentives for older cars to have immobilisers fitted (Dowling, 2012). The possible consequences of mandatory car immobilisers primarily relate to the shift to robbery and related offences and unlawful entry, burglary, and break and enter. Before, mandatory immobilisers, car theft may have been an easy option as a method of obtaining cash and goods. After the introduction of mandatory immobilisers car theft was made more difficult. Therefore, the increased rates of property crime (burglary) could possibly be attributed to the increased security feature added to cars. Also it is possible that breaking into a homes or business became necessary to obtain cars' keys.

Neale (2004) suggested illicit drugs are expensive commodities for users without jobs and when a government benefit is their main source of income. A large number of participants in Neale's study admitted to having engaged in economically-motivated offences three months prior to their detention. Approximately 42% of all participants admitted to engaging in theft from a business or shop, a further 32% admitted to supply or selling drugs, 30% handled stolen goods, 19% admitted to fraud or forgery, 15% committed theft of a person, and 10% committed theft from a house (Neale). This research agrees with the current study, which also found WA amphetamine-using detainees were more likely to commit offences against property rather than offences against people.

Johnson (2004) also found the DUCO study had a considerable overlap between property crimes and drug offences, similar to the findings from the current research. Approximately 18% of all crimes committed by the female prisoners were fraudulent activities. A further 60% of females who repeatedly traded in stolen goods also were repeat drug traffickers. Another 71% of violent female offenders were involved in buying drugs. However, those committing property crimes (except fraud) tended to be more active in buying and selling illicit substances when compared to violent offenders (Johnson). Like Johnson, the current study also found, amphetamine users committed more economically-motivated offences, such as robbery, theft, burglary and similar offences.

McKetin, McLaren, and Kelly's (2005) also found that amphetamine users committed more economic compulsive offences. McKetin et al. found methamphetamine users had frequent contact with the police and had committed at least one other crime. Also, a majority of arrests were related to illicit drug offences or economically-motivated crimes. Similarly, the main reason given for crime was an increased need for funds or goods to support an illicit drug use habit, with approximately one third of methamphetamine users having spent time in prison (McKetin et al.). McKetin et al. further support the current study which found WA amphetamine-using detainees committed more theft, burglary, robbery and similar offence, when compared to amphetamine non-users.

Concluding remarks

The current study involved the analysis of secondary data obtained from the Australian Institute of Criminology (AIC) for the DUMA program, collected from the East Perth lock-up, one of the many sites included in the overall monitoring program. This study analysed three main sections of the DUMA data i) detainee amphetamine use ii) the profile demographic profile of amphetamine-using detainees and iii) offences committed by

amphetamine-using detainees and how these offences differed when compared to amphetamine non-using detainees.

In conclusion, detainees who had used amphetamines reported increasing their use of amphetamines during a time when Australia experienced a heroin drought and supplies of amphetamines surged beginning late 2000. The increased use was confirmed with positive urine samples. The profile of amphetamine-using detainees were typically males aged between 18 and 34 years old; most likely not to be of ATSI origin; predominantly single; lived at another person's residence, attained an education level of Year 10 or less; and were most likely unemployed. Also, amphetamine-using detainees committed more offences against property, in particular, robbery, extortion and related offences; unlawful entry with intent/burglary, break and enter; theft and related offences; illicit drug offences; weapons and explosives offences.

Having established the typical profile of detainees who had used amphetamines and the types of offences they may commit on release, this information could be a basis for further research into program and policy development for treating offenders with amphetamine-related regular use and providing support to non-regular amphetamine users, not only at the police lock-up but in the community. In an attempt to reduce the likelihood of recidivism among detained offenders, interventions are required for those detainees at various stages of dependence.

For individual, families and communities, costs are high when drug users commit criminal offences. The State could seek to address individuals' illicit drug use and health-related issues during their detention and beyond. Health messages and follow up interventions could be the first steps in the process of rehabilitating offenders whose drug use may be implicated in their criminal behaviour. Follow up interviews with amphetamine-using detainees should also be delivered, providing additional information and guidance following

their release, including access to drug treatment, counselling, and access to gaining employment.

References

- American Psychiatric Association. (2000). *Diagnostic statistical manual of mental disorders (text revision)*. Washington, DC: Author.
- Australian Bureau of Statistics. (2006). *May key figures*. Retrieved August 10, 2008 from <http://www.abs.gov.au/ausstats/abs@.nsf/ProductsbyReleaseDate/5D9656C815AAD499CA2571A90014B600?OpenDocument>
- Australian Bureau of Statistics. (2007). *Feature Article – Educational Participation in Western Australia*. Retrieved August 10, 2008 from <http://www.abs.gov.au/ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/82443b80d9dace8eca256f2a000fd1ca!OpenDocument>
- Australian Bureau of Statistics. (2008). *Australian Standard Offence Classification (ASOC), 1997*. Retrieved April 13, 2009, from <http://www.abs.gov.au/ausstats/abs@.nsf/2f762f95845417aeca25706c00834efa/a255559553152085ca25697e00184ac1!OpenDocument>
- Australian Federal Police. (2002). *Amphetamines seized at Sydney airport*. Retrieved September 18, 2008 from http://www.afp.gov.au/media_releases/national/2002/amphetamines_seized_t_sydney_airport.html
- Australian Institute of Health and Welfare. (1995). *National Drug Strategy Household Survey: Urban Aboriginal and Torres Strait Islander Peoples Supplement 1994*. Retrieved May 1, 2012, from http://www.ndlrf.gov.au/pub/Monograph_15.pdf
- Australian Institute of Health and Welfare. (1999). *1998 National Drug Strategy: First Results*. Retrieved November 15, 2006, from <http://www.aihw.gov.au/publications/phe/ndshs98/ndshs98.pdf>
- Australian Institute of Health and Welfare. (2002). *2001 National Drug Strategy: First Results*. Retrieved November 15, 2006, from <http://www.aihw.gov.au/publications/phe/ndshs01/index.html>
- Australian Institute of Health and Welfare. (2005). *2004 National Drug Strategy: First Results*. Retrieved November 15, 2006, from <http://www.aihw.gov.au/publications/index.cfm/title/10122>
- Australian Institute of Health and Welfare. (2008). *2007 National Drug Strategy: First Results*. Retrieved November 15, 2006, from <http://www.aihw.gov.au/publications/index.cfm/title/10579>
- Bennett, T., & Holloway, K. (2006). Variations in drug users accounts of the connection between drug misuse and crime. *Journal of Psychoactive Drugs*, 38, 243-254.

- Boyum, D., & Kleinman, M. (2003). Breaking the drug-crime link. *Public Interest*, 152, 19-32.
- Breen, C., Degenhardt, L., Roxburgh, A., Bruno, R., Fetherston, J., Jenkinson, R., Kinner, S., Moon, C., Proudfoot, P., Ward, J., & Weekley, J. (2003). *Australian drug trends 2003: Findings from the Illicit Drug Reporting System (IDRS)*. NDARC Monograph no. 51. Sydney: National Drug and Alcohol Research Centre, University of NSW, p.16, 72, 93.
- Burke, C. (2007). Methamphetamine use and abuse in San Diego County arrestees. *Journal of Psychoactive Drugs*. November, 3337-346.
- Byqvist, S. (2006). Drug-abusing women in Sweden: Marginalization, social exclusion and gender differences. *Journal of Psychoactive Drugs*, 38, 427-441.
- Cabinet Office of Drug Policy, NSW. (2002). *Heroin: An assessment current situation, trends, and potential risks for Australia and NSW*. ActNow: Author.
- Caldicott, D., Pigou, P., Beattie, R., & Edwards, J. (2005). Clandestine laboratories and the potential for harm. *Australian and New Zealand Journal for Public Health*, 29, 155-162.
- Daniulaityte, R., Carlson, R. & Kenne, D. (2007). Methamphetamine use in Dayton, Ohio: preliminary findings from the Ohio substance abuse monitoring network. *Journal of Psychoactive Drugs*, 39, 211-222.
- Degenhardt, L., Conroy, E., Gilmour, S., & Hall, D. (2005). The effect of a reduction in heroin supply on fatal and non-fatal drug overdoses in New South Wales, Australia. *The Medical Journal of Australia*, 182, 1, 20-23.
- Department of Health and Ageing. (2007). *Illicit drugs diversion initiative*. Retrieved November 14, 2007, from <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/health-pubhlth-strateg-drugs-illicit-diversion-about.htm>
- Department of Transport. (2011). *Vehicle Safety and Standards Circular to Industry: Immobiliser Information for Motor Vehicle Dealers*. Retrieved February 16, 2012, from <http://www.transport.wa.gov.au>
- Dowling, N. (2012). *WA car theft leads nation*. Retrieved on April 20, 2012, from <http://www.perthnow.com.au/news/western-australia/wa-car-theft-leadsnation/storye6frg143-1226133739412>
- Edwards, C. (2005). *Changing Policing Theories for 21st Century Societies*. Sydney: The Federation Press.
- Graycar, A. (2000). *DUMA Drug use monitoring in Australia*. Retrieved December 3, 2006, from http://www.aic.gov.au/conferences/other/graycar_adam/

- Goldstein, P. (1985). The drugs/violence nexus: A tripartite conceptual framework. *Journal of Drug Issues, 15*, 493-506.
- Johnson, H. (2004). *Drugs and crime: A study of incarcerated females*. Research and Public Policy Series (No. 63). Canberra: Australian Institute of Criminology.
- Kalat, J. (2001). *Biological psychology, (7th ed)*. Belmont, California: Wadsworth.
- Kaye, S., & McKetin, R. (2005). *Cardiotoxicity associated with methamphetamine use and signs of cardiovascular pathology among methamphetamine users* (Technical Report 238). National Drug and Alcohol Research Centre. Retrieved January 19, 2012, from <http://www.ndlrf.gov.au/pub/Cardiac%20probs%20and%20amphet.pdf>
- Keelty, M. (February 23, 2005). *Australian Federal Police*. Paper presented at the International Conference on Tackling Drug Abuse, Hong Kong.
- Klee, H. (1998). The love of speed: An analysis of the enduring attraction of amphetamine sulphate for British youth. *Journal of Drug Issues, 28*, 33-56.
- Klee, H., & Morris, J. (1994). Crime and drug misuse: Economic and psychological aspects of the criminal activities of heroin and amphetamine injectors. *Addiction Research, 1*, 377-386.
- Kraemer, S., Gateley, N., & Kessell, J. (2009). *HoPE (Health of prisoner evaluation): Pilot study of prisoner physical health and psychological wellbeing*. Edith Cowan University, Perth, Western Australia.
- Li, X., Zhou, Y., & Stanton, B. (2002). Illicit drug initiation among institutionalized drug users in China. *Addiction, 5*, 575-582.
- Lineberry, T., & Bostwick, M. (2006). Methamphetamine abuse: A perfect storm of complications. *Mayo Clinic Proceedings, 81*, 77-85.
- Marks, G., & Fleming, N. (1999). *Early school leaving in Australia: Findings from the 1995 Year 9 LSAY cohort. LSAY Research Reports*. Longitudinal surveys of Australian youth research report; n.11. Retrieved January 19, 2012, from http://research.acer.edu.au/lsay_research/71
- McCormack, D., & Buckley, N. (2006). Psychostimulant poisoning. *Australian Prescriber, 4*, 109-111.
- McKetin, R., McLaren, J., & Kelly, E. (2005). *The Sydney methamphetamine market: Patterns of supply, use, personal harms and social consequences*. National Drug and Alcohol Research Centre. Retrieved January 19, 2012, from <http://www.smh.com.au/pdf/icereport.pdf>

- Mouzos, J., Smith, L., & Hind, N. (2006). *Drug use monitoring in Australia: 2005 annual report on drug use among police detainees*. Retrieved December 2, 2006 from <http://web.aic.gov.au/search/search.cgi?query=methamphetamine&collection=aic&form=simple>
- Mikami, T., Naruse, N., Fukura, Y., Ohkubo, H., Ohkubo, T., Matsuura, M., Moriya, H., Nishikawa, T., & Kojima, T. (2003). Determining vulnerability to schizophrenia in methamphetamine psychosis using exploratory eye movements. *Psychiatry and Clinical Neurosciences*, 57, 433-440.
- Murray, J. (1998). Psychophysiological aspects of amphetamine – Methamphetamine abuse. *Journal of Psychology*, 132, 227-238.
- National Aboriginal and Torres Strait Islander Health Survey, 2004-05. (NATSIHS) (2006). Retrieved May 1, 2012, from <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4715.0>
- National Drug and Alcohol Research Centre (NDARC). (2004). *Causes of heroin shortage revealed in new report*. Retrieved November 1, 2008 from [http://notes.med.unsw.edu.au/NDARCWeb.nsf/resources/PR_2004/\\$file/HEROIN+SHORTAGE+RELEASE+2004.pdf](http://notes.med.unsw.edu.au/NDARCWeb.nsf/resources/PR_2004/$file/HEROIN+SHORTAGE+RELEASE+2004.pdf)
- National Institutes on Drug Abuse. (1996). *The economic costs of alcohol and drug abuse in the United States – 1992*. Retrieved April 4, 2008 from <http://www.nida.nih.gov/economicCosts/Chapter6.html#6.2>
- Neale, J. (2004). Gender and illicit drug use. *British Journal of Social Work*, 34, 851-870.
- Nurco, D., Kinlock, T., Hanlon, T., & Grittner, F. (2001). *Crime and drugs*. Encyclopaedia of drugs, alcohol & addictive behavior, (2nd Edition). Ed. Rosalyn Carson-DeWitt. New York: Macmillan Reference USA.
- Oboti, S., Hubbard, S., & Anthony, J. (1999). Level of education and injecting drug use among African Americans. *Drug and alcohol dependence*, 55, 177-182.
- Pollini, R., & Strathdee, S. (2007). Indicators of methamphetamine use and abuse in San Diego County, California: 2001-2005. *Journal of Psychoactive Drugs*. November, 319-326.
- Prichard, J., & Payne, J. (2005). Key findings from the drug use careers of juvenile offenders study. *Trends and issues in crime and criminal justice no. 304*. Canberra: Australian Institute of Criminology.
- Pudney, S. (2002). The road to ruin? Consequences of age initiation into drug use and offending by young people in Britain. *The Economic Journal*, 113, 486, 182-198.
- Rasdien, P. (2006). WA methamphetamine fix 'longest'. *The West Australian*, p. 42.

- Rasmussen, N. (2008). America's first amphetamine epidemic 1929-1971: A quantitative and qualitative retrospective with implications for the present. *American Journal of Public Health, 6*, 974 – 986.
- Ray-Mihn, R. (2006). Unmasking methamphetamine. *The Journal of Continuing Education in Nursing, 37*, 102-104.
- Riddell, S., Nielssen, O., Butler, T., MacDonald, C., & Starmer, G. (2006). The relationship between amphetamine use, crime and psychiatric disorder among prisoners in New South Wales. *Psychiatry, psychology and law, 13*, 160-16.
- Rodriguez, N., Katz, C., Webb, V., & Schaefer, D. (2005). Examining the impact of individual, community and market factors on methamphetamine use: A tale of two cities. *Journal of Drug Issues, 35*, 665-694.
- Ryder, D., Salmon, A., & Walker, N. (2001). *Drug use and drug-related harm: A delicate balance*. Melbourne: IP Communications.
- Singer, M., Mirhej, G., Santelices, C., & Hastings, E. (2006). Tomorrow is already here, or is it? Steps in preventing a local methamphetamine outbreak. *Human Organization, 65*, 203-218.
- Sommers, I., & Baskin, D. (2006). Methamphetamine use and violence. *Journal of Drug Issues, 36*, 77-97.
- Welch, D. (2008). *Heroin flow prompts theft warning*. Retrieved April, 23, 2012, from <http://www.smh.com.au/news/national/heroin-flow-prompts-theft-warning/2008/09/11/1220857739980.html>