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Drugs and Crime: The True Relationship

This

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Tammy Ayres

School of Psychology

University of Leicester

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Abstract:

The link between drug use and crime is well established in academic, policy and treatment, particularly the idea that drug use causes crime, despite the nature of the drug-crime relationship varying between sub-groups of drug using offenders and not existing at all for the majority of drug using non-offenders¹. Research suggests the amount of crime attributable to drug use has been over exaggerated. There is a dearth of research examining the drug-crime relationship between non-treatment and non-offender samples, particularly in the UK. There is also less research examining the notion that both drug use and crime are caused by other (third) factors compared to the research examining the idea that drug use causes crime. Thus this research aims to compare a group of drug using offenders (n=149) with a group of drug using non-offenders (n=111) on a number of childhood risk factors (perceived parenting, negative life-events and impulsivity), school and peer variables, as well as their coping to strategies. The aim is to ascertain if criminality among drug users is attributable to these other (third) factors, instead of their drug use causing the crime to facilitate a more in depth understanding of the relationship between drug use and offending. Group comparisons followed by regression analyses were employed to examine whether any variables predicted group membership (drug using offender or a drug using non-offender), while age, job and drug use severity were controlled for. A high number of negative life events experienced before age 18, earlier age of onset for drug use, always being in trouble with the police with friends, receiving no qualifications from school, being expelled from school and behavioural avoidant coping predicted being a drug using offender, while the reasons for initiating drug use (out of curiosity and to socialise with friends) predicted being a drug using non-offender. The results show significant differences exist between drug users that go on to become offenders and drug users who do not, and these differences are attributable to offending/non-offending status rather than drug use. The implications for treatment and policy are considered.

¹ This excludes the criminality associated with the possession of drugs.

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Abbreviations

DUO Drug Using Offender

DUNO Drug Using Non-Offender

CSDD Cambridge Study of Delinquent Development

Introduction

Drugs and crime have become inextricably linked in contemporary discourse. Particularly dominant is the notion that drug use causes crime, a view which underpins current drug policy and treatment (Home Office, 2008, 2010, 2012, 2013). Policy continues to emphasise that a reduction in drug use will lead to a reduction in crime (e.g. NTA, 2009, 2012), despite the nature of the drug-crime relationship varying between different subgroups of drug-using offenders. For some people, drug use and criminality will be related, while for others it will not. Research already differentiates between drug using offenders who are primarily criminals that use drugs and those who are primarily drug users who commit crime (see Best, Day, et al. 2008; Nurco, 1998); a distinction that influences the relationship between drugs and crime.

For the most problematic drug users the relationship between drug use and criminality is well documented, particularly where users commit crime to finance their drug use (Bennett & Holloway, 2007; Goldstein, 1985; Simpson, 2003), but they remain a minority. The amount of crime attributable to drug use may have been over exaggerated (Stevens, 2011) since much of the research focuses on treatment samples and/or offender populations (see Bennett & Holloway, 2007; Gossop, Trakada, Stewart & Witton, 2006), which invariably skews the statistics. Contrary to the dominant ideology, the majority of arrestees, although drug users, are not problematic users and report little to no connection between their drug use and offending (Ministry of Justice 2013; UKDCP, 2008). When examined in its wider context, the drug-crime statistics are less convincing. Problematic drug users (those who use heroin and crack) represent 13% of all arrestees and only 22% of drug using arrestees (UKDCP, 2008) and although the majority of problematic drug using offenders report a connection between their drug use and offending, they represent only a small percentage of the offender population. Although nearly two-thirds of arrestees report

using drugs (59%), the majority (46%) report less problematic patterns of use (do not use heroin and crack), and except for 5% of this group, the majority report no connection between their substance use and offending (UKDCP, 2008). In support of these findings a more recent report indicates that although slightly higher than the UKDCP report (2008), over a third of male offenders reported ever using heroin in their lifetime (40%) and just over a third (38%) said they committed crime to get money for drugs and 28% thought their offending and drug use were connected, emphasising that the stereotypical drug-crime relationship only applies to a minority of offenders (Ministry of Justice, 2013). Furthermore, drug use is more prevalent in offender populations, than criminality (excluding the criminality associated with the possession of drugs) is in drug using populations (McSweeney et al. 2007; Ministry of Justice, 2013; MacCoun et al. 2003) signifying that the majority of drug users do not offend.

However, there is a failure to explain why the majority of drug users do not partake in crime. Instead figures are extrapolated from the most problematic drug users and indiscriminately applied to offender and drug using populations because research examining the drug-crime relationship among non-clinical and non-offender populations is significantly lacking (Fothergill & Ensminger, 2006; Hammersley, 2005; South, 2004), illustrating a need for comparisons to be made between drug using non-offenders and drug using offenders here in the UK. By doing this it is hoped that any differences and similarities identified will offer a greater insight into why some drug users commit crime, while others do not – and thus the relationship between drug use and criminality. The three areas to be examined in the subsequent literature review are: childhood risk factors for offending and drug use, the initiation of drug use and offending, and the functionality of drug use/crime and coping mechanisms.

Therefore, the aim of this thesis is to elucidate on the drug crime relationship, by comparing male drug using offenders with male drug using non-offenders. Drug use will be used as an all encompassing term to include the use of illicit drugs, alcohol and prescription medication whether it has been legitimately prescribed to the individual

or not (non-medical prescription drug use) (i.e. use of benzodiazepines, methadone, pregablin).

After a review of the literature, chapter 2 will outline the aims and objectives of the research and the methodology used to collect the research data, which will be followed by an analysis of the data in chapter 3. The final chapter, chapter 4, will consider the findings of the research, the limitations of the study and future research implications.

1.1 Drugs and Crime

The relationship between drug use and criminality is a heavily disputed area of academia. Numerous studies have evidenced an association between drug use and delinquency not only in adolescence but also in adulthood (D'Amico, Edelen, Miles & Morral, 2008; D'Amico, Ellickson, Collins, Martino & Klein, 2005; Mason, Hitchings, McMahon & Spoth, 2007). Research has shown that drug use predicts delinquency (Green, Doherty, Stuart & Ensminger, 2010b), particularly substance related delinquency like possession and supply (Pedersen & Skardhamar, 2009; Slade, Stuart, Salkever, Karakus, Green & Ialongo, 2008), delinquency predicts drug use (Doherty, Green & Ensminger, 2008; Mason et al. 2007; van den Bree & Pickworth, 2005) and the severity of delinquency is linked to the severity of drug use (White, Loeber, Stouthamer-Loeber & Farrington, 1999) indicating a reciprocal relationship that is stable over time. Ascertaining whether the developmental sequence of drug use and delinquency is interrelated, occurring by chance or whether both are caused by a third factor has proved ambiguous, with research supporting all three relationships (see Bennett & Holloway 2007 for an overview). However, this research focuses on the latter explanation and examines the notion that both drug use and criminality are caused by a third factor, since research suggests both behaviours cluster together in groups of individuals and are caused by similar risk factors (D'Amico et al. 2008; White et al. 1999).

1.2 Childhood Antecedents

There is a large body of literature that has identified childhood antecedents as strong predictors of delinquency and drug use (Farrington et al. 2009b; White et al. 1999). Therefore the ensuing discussion will focus on the childhood antecedents associated with later drug use and offending, including parenting styles, abuse and neglect, broken homes, family size and negative life events. Gender differences identified in the literature have been omitted from this review, since the current research only focuses on males.

Parenting

Parenting styles have been consistently identified as risk factors for adolescent delinquency, adult offending, onset of delinquency (for reviews see Farrington et al. 2009a; Farrington & Welsh, 2007; Petrosino, Derzon & Lavenberg, 2009) and drug use, including the severity of drug use and age of initiation (Baumrind, 1991; Montgomery, Fisk & Craig, 2008). Parenting style refers to a range of factors including communication, demonstration of emotions, parent-child interactions, supervision and discipline. According to Diane Baumrind (1991) there are four main prototypes for parenting; authoritarian, authoritative, permissive and rejecting-neglecting.

Authoritarian parents are controlling, demand obedience, punitive and emotionally cold. Children subject to authoritarian styles of parenting are more likely to be delinquent and convicted of a violent offence than children subjected to other styles of parenting (Farrington, 1994; Hoeve et al. 2008; Steinberg, 2001). Authoritative parents impose clear boundaries and set rules on their children and implement fair and consistent discipline, but are also warm and receptive caregivers who are supportive and have good communication with their children, allowing them some autonomy. However, children subject to authoritarian styles of parenting are less likely than children subject to other styles of parenting to use drugs or alcohol, except

for children with authoritative parents (Baumrind, 1991; Montgomery, Fisk & Craig, 2008). Baumrind (1991, 1993) found that authoritative parenting was a protective factor against adolescent drug use, particularly problematic drug use, and produced well adjusted, independent and more socially competent children, who were also less likely to offend. Children subject to non-authoritative parenting styles had twice the risk of developing problematic drug use (Benchaya Bisch, Moreira, Ferigolo & Barros, 2011). The children with rejecting-neglecting parents, whose parents demonstrate low control and low warmth, had the highest levels of drug use, followed by children with permissive parents, whose parents demonstrate high warmth but low control (Baumrind, 1991). Thus neglectful parenting predicts serious persistent offending, cocaine, ecstasy and polydrug use (Hoeve et al. 2008; Montgomery, Fisk & Craig, 2008).

Combinations of perceived parenting dimensions have also been shown to predict offending and drug use. For example, Andersson and Eisemann (2003) found a rejecting father and overprotective mother predicted heroin addiction, while perceived parental rejection alongside emotional warmth was significantly related to self-reported delinquency (Palmer & Hollin, 1997). Offenders and drug users are more likely than non-offenders and non-drug users to have rejecting parents with low emotional warmth (Barnow, Lucht & Freyberger, 2005; Hoeve et al. 2008; Kazemian, Widom & Farrington, 2011). Research continually shows that parental neglect and over protection (known as affectionless control) are more likely to be reported by drug addicts and offenders than by control groups (Mak, 1994, 1996; Schweiter & Lawton, 1989). Parental overprotection has consistently been shown to predict both offending and drug use (Hoeve et al. 2009). Therefore, parenting dimensions predict self-reported offending, serious offending, recreational drug use and problematic drug use (Andersson & Eisemann, 2003; Farrington, 1994; Hoeve et al. 2008; Palmer & Hollin, 1997). However, a number of studies have shown that antisocial adolescents tend to have more negative perceptions of parenting, which may impact on the above findings (Östgård-Ybrandt & Armelius, 2003; Palmer & Hollin, 1999). Parenting

dimensions also incorporate many of the other facets of parenting individually identified as risk factors for offending and drug use, including parental supervision and parental discipline.

Parental discipline involves a parent's reaction to their child's behaviour and the implementation of rewards and punishments. Physical punishment can range from low level spanking to being hit with an object (i.e. a belt), and although there is evidence to suggest physical punishment might achieve immediate compliance (Gershoff, 2002), there is a lack of evidence to suggest it works in the long-term (MacKenzie et al. 2012; Gershoff & Bitensky, 2007). Inconsistent and overly harsh discipline predicts juvenile delinquency, adult convictions, and drug use, including an earlier age of onset (Bronte-Tinkew et al. 2006; Gershoff, 2002; King & Chassin, 2004; Lau et al. 2005; Lynch et al. 2006; Farrington, et al. 2009c). However, even low (> 2 times a week) and moderate/frequent levels (2-3 times a week) of spanking have been linked to an increase in antisocial behaviour and violence (Grogan-Kaylor, 2004, 2005; MacKenzie et al. 2012; Taylor et al. 2010). Alternatively, spanking has also been shown to reduce drug use more than other non-physical punishments (Tennant, Detels & Clark, 1975).

Harsh parental discipline is often associated with poor parent-child relationships and a lack of emotional warmth (Coyle et al. 2002; Gershoff, 2002), which are also positively associated with delinquency, adolescent drug use and problematic drug use (Andersson & Eisemann, 2003; Bahr et al. 1995; Fallu et al. 2010; Kopak & Hawley, 2012). Cold and unloving parental interactions can lead to fragile emotional parent-child relationships and weak parent-child bonds, which have also been associated with delinquency and drug use (Newcomb, 2006). Weak parent-child bonds can also weaken parental influence over the child's behaviour (Hirschi, 2009; Sampson & Laub, 1990) and lead to poor parent-child communication and low parental involvement, both of which predict future offending and drug use (Derzon, 2010; Farrington & Loeber, 1999; Gorman-Smith et al. 1996; Wills & Cleary, 1996). Poor parent-child attachments also hinder the child's future relationships and individual development

(Bowlby, 1951; Rutter, 1981), particularly their emotional development and subsequent coping styles (Mikulincer, Florian & Weller, 1993). Delinquency and drug use are also inhibited by strong parent-child attachments (Hirschi, 2009; Wright & Cullen, 2001) and close parental supervision (Bahr, Hoffmann & Yang, 2005; Farrington et al. 2009b).

Parental supervision refers to the extent parents set rules, keep an eye on and are aware of their children's activities and associations (Farrington & Welsh, 2007; Palmer, 2000). According to the literature parental supervision can be split in to three types; direct supervision, indirect supervision, and parental knowledge. Direct supervision is when the parents physically monitor their children by being in close proximity, whereas indirect supervision refers to parental controls and values that have been internalised by the children acting as a constraint on their behavior (Palmer, 2000). The third type refers to parental knowledge about their child's activities obtained through voluntary disclosure of information by their children, parents asking them about their activities/acquaintances (parental solicitation) or via parental control where children have to explain their whereabouts before or after going out (Kerr & Stattin, 2000). However, recent research has shown that parental knowledge 'is more a function of what youths tell them than what they try to find out by monitoring' (Kerr, Stattin & Burk, 2010, p.57). In their study Kerr and Stattin, (2000) found that a child's voluntary disclosure was connected to lower levels of delinquency, fewer deviant peers and better adolescent adjustment, while Fletcher, Steinberg and Williams-Wheeler (2004) found that parental monitoring predicts whether children have the opportunity to partake in substance use irrespective of parental knowledge. Unlike drug use, the link between poor parental monitoring and delinquency has been well established.

Research shows that poor parental monitoring doubles the risk of future delinquency and is one of the strongest and most reliable predictors of future criminality and official convictions up to age 50 (Derzon, 2010; Farrington et al. 2009b; Johnson et al. 2004; Thornberry et al. 2009). However, the research relating to parental monitoring

and severity of drug use is more equivocal. Indirect supervision has been shown to inhibit drug use (McIntosh, MacDonald & McKeganey, 2005; Parker et al. 1998) and poor supervision has been shown to predict drug use, including earlier age of onset, increased severity of use and intravenous drug use, particularly among boys (Chilcoat & Anthony, 1996; Dinwiddie et al. 1992; McArdle et al. 2002; Svensson, 2000). However other evidence indicates that parental monitoring has no effect on prospective drug use (Fothergill & Ensminger, 2006) and Nurco and colleagues (1998) found that although problematic drug users self-report less parental supervision at ages 12-14, the difference was not significant when compared to community and peer control groups. The relationship between parental monitoring and drug use is complicated further if the parent implementing the effective monitoring is a substance user, since their child is more likely to experiment with cannabis (Brook et al. 1986; Dishion et al. 1999). Although a clear relationship has been established between poor parental monitoring and delinquency, the relationship between parental supervision and drug use remains inconclusive. In summary, research has continually demonstrated the influence parenting has on prospective drug use and offending indicating it could be a factor that leads to the development of both behaviours in individuals, particularly since it has been shown to predict official convictions, severity of drug use (recreational or problematic) and age of onset for drug use and delinquency.

Child Abuse and Neglect

Child abuse includes physical, mental and sexual abuse, and neglect is defined as 'the persistent failure to meet a child's basic physical and/or psychological needs, likely to result in the serious impairment of the child's health or development' (NSPCC, 2007, p. 3). Neglect is the most common form of maltreatment and some would say the most harmful (see Radford et al. 2011), since it has been shown to have a more detrimental impact on a child's development and future behaviour, than physical or verbal abuse (see Bousha & Twentyman, 1984; Burgess & Conger, 1978). Others argue that neglect

is at least as damaging as physical or sexual abuse; however neglect is under researched and often coexists alongside other forms of maltreatment as children often experience more than one type of abuse (Connell-Carrick, 2003; Gilbert et al. 2009).

Child abuse has been identified as a strong predictor of both self-reported and officially recorded delinquency even when other predictors (gender, age, ethnicity and socioeconomic circumstances) are controlled for (Ireland, Smith & Thornberry, 2002; Kelley, Thornberry & Smith, 1997; Loeber et al. 2008; Maxfield & Widom, 1996). Child abuse increases the odds of early onset of antisocial behaviour, serious juvenile delinquency, drug-related arrests in adulthood and being a persistent career criminal (de Boer, van Oort, Donker Verheij & Boon, 2012; Lemmon 1999; Odgers et al. 2007; Stouthamer-Loeber et al. 2002). Widom (2010) found that maltreated youth were eleven times more likely to be arrested for violent offences than matched controls, while adolescents maltreated in adolescence were 3.7 times more likely to be arrested in late adolescence than those who had never been maltreated which increased to 4.3 times for those who were persistently maltreated (Ireland, Smith & Thornberry, 2002). However other research suggests child maltreatment is only a modest predictor of adult criminality (Leschied et al. 2008) and its effects depend on the age the maltreatment occurs (Ireland, Smith & Thornberry, 2002). Although at times inconsistent, there is an apparent relationship between childhood maltreatment and offending.

There is also a relationship between childhood maltreatment and drug use including problematic drug use (Conroy, Degenhardt, Mattick & Nelson, 2009; Huang et al. 2011; Keyser-Marcus et al. 2014; Wu, Schairer Dellor & Grella, 2010); however the exact nature of the relationship remains ambiguous and not fully understood, particularly for men (Widom, Weiler & Cottler, 1999; Wilson & Widom, 2009). Childhood maltreatment predicts drug use (Ireland, Smith & Thornberry, 2002; Odgers et al. 2007; Simpson & Miller, 2002), while others suggest it only increases the likelihood of drug use and addiction in adulthood. Children exposed to childhood

abuse and neglect are 1.5 times more likely to use any illicit drug in the last year, particularly cannabis, report more drug related problems and report using a greater number of illicit drugs in middle adulthood (40 years old) than a control group (Widom et al. 2006). Therefore the risk of drug use is increased by one-third compared to non-maltreated youth (Fergusson et al. 2008; Gilbert et al. 2009; Kelley, Thornberry & Smith, 1997; Simpson & Miller, 2002). Exposure to emotional abuse in childhood is also associated with a greater severity of drug use and a younger age of first alcohol use among men (Hyman, Garcia & Sinha, 2006). Male intravenous drug users are more likely to suffer physical abuse than the general population (Wang et al. 2010) and childhood physical abuse, but not sexual abuse, was a predictor of young adults' substance abuse (Huang et al. 2011; Lo & Cheng, 2007). However, other evidence suggests neither child abuse nor neglect predicts adult drug use, severity of drug use or intravenous drug use, even when demographic factors (age, race and neighbourhood) are controlled for (Dinwiddie et al. 1992; Wilson & Widom, 2009; Widom & White, 1997). Thus the relationship between childhood abuse, neglect and drug use is undetermined.

Specific types of childhood abuse have also been shown to predict drug use and offending. For example, abuse in childhood predicts sex-offending (Seto & Lalumière, 2010), sexual abuse and neglect, but not physical abuse in childhood, predicts violent offending (Yun, Ball & Lim, 2011), while physical abuse has also been shown to predict youth violence and polydrug use, particularly among men (Armour, Shorter, Elhai, Elklit & Christoffersen, 2014; Maas, Herrenkohl & Sousa, 2008). These findings indicate an explicit relationship between types of abuse, drug use and delinquency. However, substance use in adulthood is also a common coping strategy implemented to deal with childhood abuse as a form of self-medication, and sexual abuse has been associated with avoidant coping (Chaffin, Wherry & Dykman, 1997; Ireland & Widom, 1994; Widom, Weiler & Cottler, 1999). Therefore, the results relating to crime, drug use and childhood maltreatment are mixed, particularly for men. Although the exact nature of the relationship remains ambiguous it is worthy of further investigation to

see if childhood maltreatment can help to elucidate on the development of both criminality and drug use in people's lives. It must also be noted that officially recorded episodes of child maltreatment significantly underestimate (by 4-6 times) actual levels of self-reported abuse (Everson et al. 2008).

A sometimes overlooked explanation for the negative outcomes of child abuse and neglect is that maltreated children can be temporarily or permanently separated from their families and end up in care, which is linked to both drug use and offending. Children in care are twice as likely as children not in care to receive a caution or conviction and use drugs, while children in a children's home are five times more likely to receive a caution or conviction than those in foster care (Blades, Hart, Lea & Willmott, 2011). Adolescents in foster care are also more likely to engage in crime, violence, drug use and have an earlier age of onset for these risky behaviours (for a review see Taussig, 2002). Due to their increased risk of emotional and behavioural problems children in foster care may also lack the necessary coping resources needed to cope with their environment, the multiple stressors experienced in foster care and due to the multiple life transitions (Taussig, 2002). Thus being permanently removed from the family home is a risk factor for both drug use and offending as is coming from a disrupted family.

Disrupted Families

A disrupted family refers to a situation where the child's biological parents are either divorced or separated (not usually by death) resulting in the children being separated from one or both biological parents. Children, particularly boys, from single parent households are more likely to be delinquent, experiment with, and use drugs more frequently, and become problematic drug users than children from intact families (Barrett & Turner, 2006; Demuth & Brown, 2004; Farrington et al. 2009b; Green et al. 2010b; Hemovich & Crano, 2009, 2011; Krohn et al. 2009; Ledoux et al. 2002; McVie & Holmes, 2005; Miller, Esbensen & Freng, 1999). The Cambridge Study of Delinquent Development (CSDD) found that a disrupted family before the age of 10 predicted

both adult and juvenile convictions, and 60% of boys who had been separated from a parent before their tenth birthday were convicted up to age 50 (Farrington et al. 2009b). While Nurco and colleagues (1996) found that a disrupted family before age 11 predicted both severity of offending at age 11 and drug addiction, supporting other research in this area (see DeLisi, Neppl, Lohman, Vaughn & Shook, 2013). However, this is not always the case and some children growing up in single parent households report less crime and drug use than those in intact families (Friedman, Ali & McMurphy, 1999; Juby & Farrington, 2001), which indicates the relationship between single-parent families, delinquency and drug use is not straightforward.

The link between single-parent families, delinquency and drug use is attributable to the family dynamics evidenced in disrupted families (Barrett & Turner, 2005; Demuth & Brown, 2004; Fischer & Fieke, 2004; McArdle et al. 2002). The lower levels of parent-child attachment characteristic of non-intact families and the lack of supervision from having only one parent to watch over the children affects the relationship between family structure, drug use and delinquency (Demuth & Brown, 2004; Miller, Esbensen & Freng, 1999; Wagner et al. 2010). Having one parent also negatively influences other familial risk factors (e.g. less money, more stress and inconsistent discipline) that have been shown to increase the risk of drug use and offending (Barrett & Turner, 2006; Demuth & Brown, 2004; McLanahan & Sandefur, 1994). Levels of conflict in particular have been shown to influence the impact a disrupted family has on a child's development. The CSDD showed that boys from broken homes were less delinquent than boys from intact families characterised by high levels of conflict, and persistent offenders had higher levels of parental conflict than non-offenders and were more likely to come from a disrupted family than any other type of offender (Farrington et al. 2009b; Juby & Farrington, 2001). In relation to drug use, Skeer and colleagues (2009) found that familial conflict in childhood was significantly associated with substance use disorders in adolescence and early adulthood. Therefore, it is not the broken home *per se*, but the levels of parental

conflict that predicts future offending and severity of drug use (Booth & Amato, 2001; Gabel et al. 1998; Haas et al. 2004; McCord, 1999; Rhoades, 2008; Skeer et al. 2009).

It is not just conflict that has an effect, as a warm loving relationship with the remaining parent (father or mother) or the presence of an additional adult relative can negate the effect a broken home has on the child's delinquency and drug use (Demuth & Brown, 2004; Gil, Vega & Biafora, 1998; McArdle et al. 2002; McCord, 1997; Martinez & Forgatch, 2002). Thus the post-break trajectory is also important, as demonstrated in the CSDD where boys who remained with their mothers had delinquency rates on par with boys from intact, low conflict families, whereas boys who stayed with their fathers or others (relatives, foster carers) had much higher delinquency rates (Juby & Farrington, 2001). The maternal hypothesis holds that those living in mother only households are less likely to use drugs and be delinquent than those living in father only households, while the same-sex hypothesis argues that those living in same sex parent-child families are also less likely to use drugs and become delinquent (Eitle, 2006; Farrington et al. 2009a; Juby & Farrington, 2001; Warshak, 1992). However the research fails to come to a definite conclusion on the impact of gender in one-parent families, since there is also evidence to show there is no benefit of living with a same sex parent, particularly for boys (Demuth & Brown, 2004; Hemovich & Crano, 2009; Powell & Downey, 1997). Many of the differences found between single-father and single-mother households may also be attributable to the dynamics of the family, including fewer resources (time and money), lower levels of involvement, attachment, warmth and supervision (Amato, 2000; Barrett & Turner, 2006; Demuth & Brown, 2004; McArdle et al. 2002; Renner, 2012; Wagner et al. 2010). Thus the nature of family relationships, family functioning and resources are more important than the structure of the family when it comes to predicting drug use and offending (Brown, 2006; Demuth & Brown, 2004; Friedman, Terras & Glassman, 2000; McArdle et al. 2002; Schroeder, Osgood & Ohia, 2010). Children from or left living in disrupted families often experience frequent changes in primary caregivers during childhood and the number of family structure transitions experienced by boys

in childhood predicts offending and drug use (Henry et al. 1993; Krohn, Hall & Lizotte, 2009; Thornberry et al. 1999). Drug use may also be used as a coping mechanism to deal with familial instability in family structure (see Needle et al. 1990). Therefore the relationship between disrupted families is more complex than merely that single parent families produce delinquent drug using children. However, family structure, conflict and the dynamics clearly have a role to play in the development of both drug use and criminality in some individuals and their family's lives.

Drug Use and Crime Runs in Families

Crime and drug use runs in families and it can be argued that it can be transmitted intergenerationally (from parent to child) and intragenerationally (from sibling to sibling). Although the mechanisms of transmission require more investigation, research suggests modeling and social learning theory explain how behaviours and attitudes are transmitted within families (Bandura, 1977; Bijleveld & Wijkman, 2009; Sutherland, Cressey & Luckenbill, 1992; Thornberry et al. 2006, 2009). For example, permissive parental attitudes towards drugs are more influential on a child's prospective drug use than the parent's actual behaviour (Bahr, Hoffman & Yang, 2005). While other research suggests it is the intergenerational transmission of risk factors (e.g. socioeconomic deprivation, single parent families, harsh and erratic discipline) that leads to the intergenerational transmission of drug use and criminality (Capaldi, Pears, Patterson & Owen, 2003; Farrington et al. 2009a; McCord, 1991, 1999; Smith & Farrington, 2004; Thornberry et al. 2003). Therefore, it is not surprising that crime and drug use runs in families.

Crime runs in families across generations (Bijleveld & Wijkman, 2009; Farrington et al. 2009a; Goodwin & Davis, 2011) and in the CSDD, half of all the convictions were accounted for by 6% of the families (Farrington et al. 2006, 2009a) and in the Pittsburgh study, 43% of arrested family members came from 8% of the families (Farrington et al. 2001). One of the strongest predictors of delinquency in adolescence

and adulthood is having a criminal parent (Farrington et al. 2009a; Thornberry et al. 2009). For example, in the CSDD having a convicted parent up to age 10 was the strongest predictor of convictions up to age 50, 62% had a convicted parent and 63% of the convicted boys in the CSDD had convicted fathers (Farrington et al. 2009a, 2009b). It is less clear whether having one or both parents involved in criminality is important. Farrington et al. (2009a) reported that there was no difference in later convictions between boys who had just one or two criminal parents. In contrast having two criminal parents does increase the frequency of the child's offending and the frequency of parental offending is related to the frequency of their children's offending (Nijhof, de Kemp & Engels, 2009).

The relative impact of parental imprisonment and parental convictions is another issue that has been examined, albeit with mixed findings. Parental imprisonment is a stronger predictor of delinquency than parental convictions (Murray, Loeber & Pardini, 2012; Murray & Farrington, 2005; Phillips et al. 2002), whereas other studies have shown that parental imprisonment does not increase the likelihood of the child being arrested any more than parental criminality (Eddy & Reid, 2003). The reason parental imprisonment is thought to be a stronger predictor than parental conviction is because of the increased seriousness of the crime; the prolonged separation between the parent and child, which causes poor attachment, internalising problems and trauma; the change in primary care giver; labelling, stigma, and social exclusion of the children; strained parenting by the remaining caregiver; and the social and economic strain caused by imprisonment (Bowlby, 1969, 1973; Dallaire & Wilson, 2010; Eddy & Poehlmann, 2010; Murray, 2007; Murray & Farrington, 2008a, 2008b; Murray & Murray, 2010; Murray, Loeber & Pardini, 2012; Phillips & Gates, 2011). The influence of parental imprisonment has also been shown to depend on which parent is incarcerated, although these findings are mixed. For example, Murray and Murray (2010) found maternal imprisonment was more influential than paternal imprisonment, while Murray, Loeber and Pardini (2012) found there were no differences regarding the imprisoned parent (mum, dad or step-parent) and its effect

on a boy's behaviour. However, parental criminality and imprisonment also predicts a child's future drug use, although once again, the findings are mixed (Fergusson, Boden & Horwood, 2008; Murray & Farrington, 2008b; Nurco et al. 1996). For example boys who had a convicted parent before the age of 18 had significantly higher rates of drug use, specifically cannabis use into young adulthood, than boys whose parents were convicted but not imprisoned (Murray, Loeber & Pardini, 2012; Roettger Swisher, Kuhl & Chavez, 2010). However, Murray, Farrington and Sekol (2012) found that parental incarceration did not predict and had no effect on drug use. Thus parental imprisonment and criminality influences offending and drug use, although the research findings on this are not always consistent.

Parental influence is also affected by the level of contact a child has with a criminal parent with higher levels of contact associated with a greater likelihood of offending (Thornberry et al. 2009). The timing of parental criminality is another critical factor whereby current criminal behaviour (i.e. after the birth) has a greater impact than historical offending (i.e. before the child is born) (Bijleved & Wijkman, 2009), but again, findings on this are mixed, with some research suggesting the timing of parental criminality is unimportant. For example, Farrington, Coid and Murray (2009) found that it did not matter whether a father was convicted before or after the birth of his son indicating that criminal fathers had no direct behavioural influence on their sons' criminality. Thus the link between parental criminality and a child's future criminality may not be causal but a result of pre-existing disadvantage and the number of risk factors present (Murray & Farrington, 2005, 2008b; Murray, Farrington, Sekol & Olsen, 2009; Johnson & Waldfogel, 2002; Wakefield & Wildman, 2011). For example, the CSDD showed boys who have a parent in prison before age 10 had significantly more risk factors (5.4) than boys with no history of parental imprisonment (2.3). Thus the effect of parental incarceration and criminality is often affected and sometimes reduced when other risk factors are taken into account (Murray & Farrington, 2008a; McCord, 1999; Murray, Loeber & Pardini, 2012; van de Rakt, Murray & Nieuwbeerta, 2012). Therefore research continually shows that

parental criminality and imprisonment affects a child's delinquency, although the exact relationship between parental convictions, imprisonment and childhood delinquency requires further investigation.

Like crime, drug use also runs in families (Bailey et al. 2006, 2009; Brook et al. 2011; Thornberry et al. 2006), but there are no statistics on the concentration of drug use in particular families. However, having a drug using parent is one of the strongest predictors of a child's future drug use (Barreras et al. 2005; Barnard, 2007) and the child's drug use often mimics that of their parents (Pears et al. 2007). Having one drug using parent doubles the child's risk of drug use, while having two drug using parents triples the risk (Kendler et al. 2012), while having a drug dependent relative increases the risk of developing substance use disorders by eight-fold compared to the general population (Merikangas et al. 1998). Nurco and colleagues (1999, p.9) found, the children of heroin addicts 'present a profile of risk factors that match and slightly exceed that of the addicts', leaving them vulnerable to prospective problematic drug use and offending. The children not only had an earlier age of onset for both alcohol and drug use than the peer control group (nonaddicted associates of the addicts) and the community control group (nonaddicted, nonassociate peers), but their age of onset was lower (by two years) than their heroin addicted parent's average age of onset. They were also more deviant by age 11 than any of the other groups, including the addicts themselves (64% versus 47%). Thus parental substance use predicts a child's drug use and delinquency (Loeber et al. 1998; Nurco et al. 1999) but like the research on criminality, the intergenerational transmission of drug use depends on the level of contact between the parent and the child (Thornberry et al. 2006). Thus the transmission of drug use and/or offending between parents and their child is mediated (indirectly affected) by parenting practises and other family factors, including same sex relationships (see Pears et al. 2007; Smith & Farrington, 2004; Thornberry et al. 2003, 2006, 2009).

Research suggests the intergenerational transmission of criminality and drug use is stronger for same sex parent-child relationships. For example, in the CSDD having a

convicted father for boys is the most significant relative and strongest predictor of delinquency (Farrington et al. 2001; Thornberry et al. 2003; van de Rakt et al. 2008) and mothers had a greater impact on their daughters drug use but not their sons (Andrews et al. 1993; Kandel et al. 2001; Thornberry et al. 2006). Therefore it has been suggested that the predictive relationship is stronger if the family member is the same sex as the child (Farrington et al. 2001, 2009a; Hoeve et al. 2009; Kandel et al. 2001) because children are more likely to model the behaviour of the parent who is the same sex as them (Laible & Carlo, 2004). However it has also been shown that it is not the same sex parent-child relationship *per se* that is important, but the quality of the parent-child relationship and the fact the relationship may also be affected by the distinct parenting styles of mothers and fathers (Bronte-Tinkew et al. 2006; Hoeve et al. 2009, 2011; Patock-Peckham & Morgan-Lopez, 2009).

Same sex relationships are also shown to be a stronger predictor of offending and drug use among siblings (Fagan & Najman, 2003; Snyder et al. 2005), and older siblings are a stronger predictor than younger siblings, as younger siblings tend to look up to older siblings as role models and thus model their behaviour (Brook et al. 2003; Low, Shortt & Snyder, 2012; Ober, Miles, & D'Amico, 2013; Rowe & Farrington, 1997; Slomkowski, Rende, Conger, Simons & Conger, 2001; Wagner et al. 2008; Whiteman, Jensen & Maggs, 2013). However, the transmission of delinquency and drug use among siblings is not just the result of modelling actual behaviour, but is also disseminated through permissive attitudes (Brook et al. 1990; Pomery et al. 2005; Sutherland, 1974), shared environmental risk factors (Rowe & Gulley, 1992; Rowe, Rodgers & Meseck-Bushey, 1992), collusion² and conflict³ (Bullock & Dishion, 2002; Criss & Shaw, 2005; East & Khoo, 2005; Widom, Weiler & Cottler, 1999; Snyder, Bank & Burraston, 2005). Although siblings share risk factors that may increase their chances of drug use and offending, the influence of siblings remains even when family and environmental factors are controlled for, illustrating the transmission and

² Sibling collusion involves engaging in deviant behaviour, and thus undermining the socialisation efforts of their parents (Bullock & Dishion, 2002).

³ Sibling conflict can take the form of coercive exchanges or actual victimisation (Low et al. 2012).

similarity of behaviours is attributable to the sibling relationship (Brook et al. 1988; Fagan & Najman, 2003; Farrington et al. 2001; Pomery et al. 2005). Sibling drug use and delinquency also has a greater predictive impact on their siblings' prospective drug use and delinquency than parental drug use and delinquency (Brook et al. 2003; Duncan et al. 1996; Fagan & Najman, 2005; Windle, 2000), particularly if they have a strong relationship (Brook et al. 1999; Criss & Shaw, 2005; Rowe & Gulley, 1992; Rowe et al. 1992). Siblings may also foster opportunities for drug use and offending. For example, co-offending by brothers of a similar age was common in the CSDD (Reiss & Farrington, 1991; Farrington et al. 2009b) and Barnard (2005) found that 50% of siblings admitted to initiating at least one of their brother's or sister's drug using careers. Although the exact processes of sibling influence on sibling behaviour is not clear, the intragenerational continuity of drug use and offending is well established, particularly in large families.

Large Family

Large families have been defined as those with five or more children (Farrington et al. 2009c) and antisocial individuals tend to have larger families (Farrington, 2011a, 2011b). Coming from a large family is a strong predictor of self-reported delinquency, being a persistent offender and official convictions up to age 50 (Farrington & Loeber, 1999; Farrington & Painter, 2004; Farrington et al. 2009c). In the CSDD 78% of convicted boys came from families with 6 or more brothers and over half (61%) of boys from large families were convicted, compared to just over a third from smaller families (Farrington & Painter, 2004; Farrington et al. 2009b). Also having four or more siblings before the age of ten doubled the risk of a boy being convicted as a juvenile (West & Farrington, 1973) and coming from a large family was the most important independent predictor of convictions up to age 32 (Farrington, 1993). Thus the link between large families and delinquency has been well established; however the relationship between large family size and drug use is virtually non-existent. Family size has been shown to affect drug use and Reinhertz et al. (2000) found 24%

of those who came from a large family (4+) were problematic drug users by age 21 compared to other sizes of family (e.g. small families). Also having multiple siblings has been shown to influence the number of other siblings in a family who go on to develop problematic patterns of drug use (Barnard, 2005), illustrating that increased family size may negatively affect drug use, but there is a dearth of research in this area.

Explaining the impact of family size focuses on the exposure to more delinquent and/or drug using siblings and thus delinquent role models (Farrington & Welsh, 2007; Barnard, 2005). However, larger families also have an increased prevalence of later born children who tend to be more delinquent and prone to drug use (Brownfield & Sorenson, 1994; Reinhertz et al. 2000; Wilkinson et al. 1982) and an increased presence of other risk factors that predict drug use and delinquency. Large families with lots of children tend to also have poor parental supervision, fewer resources (time and money), and overcrowding, which can lead to frustration, harsh punishments, maternal spanking and family discord, including parental conflict (Loeber & Farrington, 2001). Family discord may be an important factor in predicting drug use and delinquency, since siblings who engage in more conflict tend to collude together in delinquent and drug using activities (Slomkowski et al. 2001; Snyder et al. 2005). Also coming from a large family does not predict offending for boys in the least crowded conditions, which may explain why family overcrowding has been identified as an important mediator between family size and future delinquency (West & Farrington, 1973). Thus the research examining the relationship between family size and delinquency indicates there is a relationship between coming from a large family and future delinquency. However the research on drug use and large family size is so meagre it is difficult to draw any conclusions and is thus worthy of further investigation.

Summary

There is extensive evidence to suggest that childhood antecedents are criminogenic and increase the risk of future delinquency and drug use. Although some are stronger predictors than others, their interconnectedness and mediating influence make it difficult to disentangle the risk factors and establish causation (Farrington & Welsh, 2007), particularly when looking at the development of two entwined behaviours like drug use and criminality. Despite this complexity similarities and differences exist between the antecedents for offending and drug use. The similarities and differences identified in the literature may go some way to explaining the co-existence of drugs and crime in some people's lives (e.g. drug using offenders) but not others. Thus the presence and/or absence of the childhood antecedents discussed may help to distinguish between these two distinct groups; drug using offenders and drug using non-offenders. Examining the family factors underpinning drug use and crime will facilitate a better understanding of the developmental pathways leading to both drug use and where relevant criminality, to illustrate whether family factors help to differentiate between drug users who are also offenders and those who are not. The family is a source of dysfunctional relationships, retarded psychosocial development, negative life events and trauma (Hammersley, 2011) and childhood trauma has been shown to lead to an earlier age of first intoxication, more severe substance use and criminal behaviour (Ardino, 2011, 2012; Farrugia et al. 2011).

According to the literature an authoritarian parenting style produces delinquent children but protects against drug use, whereas neglectful parenting predicts both problematic and recreational patterns of drug use as well as serious persistent delinquency (Baumrind, 1991). There are also some differences in the relationship between specific parenting dimensions and the two behaviours. Poor parental supervision, childhood maltreatment and large family size are some of the strongest and most reliable predictors of offending, but are less robust at predicting drug use. Other familial risk factors are similar for both drug use and offending. For example, children from single parent families are more likely to use drugs and be delinquent

than children from intact families, and both crime and drug use runs in families being transmitted both intergenerationally and intragenerationally via parents and siblings. Thus there are a number of anomalies in the research examining the family factors underpinning drug use and offending. However, some of the differences might illustrate the different mechanisms explaining each behaviour, they might also be attributable to the incongruent definition of delinquency and drug use used in each study (cf. Bailey et al. 2009 and Krohn, Hall & Lizotte, 2009) and the fact, frequency of drug use is not always measured (see Bahr, Hoffman & Yang, 2005). Despite these limitations and anomalies, family factors as an explanation for the development of both drug use and crime in some individuals but not others seems worthy of further investigation, specifically whether family factors constitute the third factor capable of explaining the existence of drugs and crime in some people's lives.

Negative Life Events

Negative life events are adverse events that occur in one's life, and include natural disasters, death of a loved one, illness, victimization and personal injury. The number of negative life events experienced is usually measured in a person's lifetime or in the last 12 months and can be measured either in adolescence or adulthood (Baker et al. 2010; Maschi, 2006; Steele, 2008; Taylor, 2006; Wills et al. 2011).

Individuals who experience a high number of negative life events are more likely to be involved in serious juvenile delinquency, adult criminality (Baker et al. 2010; Eitle & Turner, 2002; Engdahl, 2015; Maschi, 2006; Ring & Andersson, 2010) and drug use, particularly problematic and intravenous drug use (Hoffman & Su, 1997; Ring & Andersson, 2010; Taylor, 2006; Wang et al. 2010; Wills et al. 2011). The cumulative effect of negative life events can mean delinquency continues from childhood to adulthood and can lead to an escalation in drug use and offending (Hagan & Foster, 2003; Hoffman & Cerbone, 1999; Hoffman & Su, 1998; Killias et al. 2010; Wills, Vaccaro & McNamara, 1992). Negative life events in adulthood can change a non-drug

using, non-criminal individual into a criminal, drug using adult particularly since many adults will use drugs, and in some cases commit crime, to alleviate the negative affect and strain associated with the negative life event and subsequent trauma (Agnew, 2006; Engdahl, 2015; Gomez-Smith & Piquero, 2005; Hammersley, 2011; Ruiz & Strain, 2011). Alternatively individuals who experience more negative life events in childhood are more likely to have an early onset of offending, use drugs and become life-course persistent offenders (Mazerolle & Maahs, 2002). Evidence also suggests drugs are often used to cope with the negative emotions induced by the negative life event (Drapela, 2006), which may explain why bereaved young people show higher rates of problematic substance use than non-bereaved youth (Hamdan et al. 2013; Kaplow et al. 2010). Thus specific types of negative life events may be linked to specific behaviours. For example, Salmi and Kivivuori (2010) found that being injured in an accident at least twice in adolescence was a risk factor for violence, compared to youths who had suffered no accidents. Baker and colleagues (2010) found victimisation (i.e. physical abuse) had a strong link to later violence, while transitions (i.e. moving house, schools) and discrete events (i.e. death of a loved one, experiencing illness) were related to drug use. Therefore a direct predictive relationship between negative life events, delinquency and drug use has been well established.

The relationship between negative life events, delinquency and drug use also appears to be bidirectional since delinquency and drug use predicts the number of negative life events experienced (Kim et al. 2003; Rowe, Maughan & Eley, 2006; Steele, 2008). The relationship is also mediated by other factors including the stressfulness of the event (Rutledge & Sher, 2001), which is exacerbated by poor coping strategies (Min et al. 2007), interpretation of the event (Maruna, 2004), self-control (Wills et al. 2011), negative emotionality (McGue, Slutske & Iacono, 1999) and impulsivity (Hayaki et al. 2005). Impulsive individuals are already at an increased risk of drug use and delinquency (Farrington & Welsh, 2007; Thompson, Whitmore, Raymond & Crowley, 2006; White et al. 1994) and impulsivity serves to maintain criminality over the life

course (Moffitt, 1993); however impulsivity also increases the risk of negative life events occurring (Hayaki et al. 2005). Thus the relationship between negative life events, drug use and delinquency appears multifaceted. Negative life events predict drug use and criminality both directly and indirectly, including the subsequent initiation of both behaviours and many of the family factors already discussed (separated parents, family conflict, abuse and parental drug use) constitute a negative life event (Bremner, Bolus & Mayer, 2007). Thus negative life events, like family factors, may help to explain the development of both behaviours in some individuals but not others, along with individual risk factors like impulsivity.

Impulsivity

Impulsivity has been defined as 'swift action without forethought or conscious judgement, behaviour without adequate thought and the tendency to act with less forethought than do most individuals of equal ability and knowledge' (Moeller et al. 2001, p.1783). Impulsive individuals are already at an increased risk of developing maladaptive behaviours like drug use, delinquency and crime (de Wit, 2008; Dom, De Wilde, Hulstijn, van den Brink & Sabbe, 2006; Farrington & Welsh, 2007; Thompson et al. 2006). Impulsivity explains offending behaviour and drug use because offenders and drug users often act without considering the impact or consequences of their behaviour beforehand, and prefer small immediate rewards over larger delayed rewards (called temporal discounting) (Ainslie, 1975; Newman, 1987). Thus drug users are more impulsive than non-drug users (Butler & Montgomery, 2004; Moreno et al. 2012; Verdejo-García, Perales & Pérez-García, 2007) and offenders are more impulsive than non-offenders (Arantes, Berg, Lawlor & Grace, 2013; Carroll et al. 2009; Farrington, 2011a, 2011b).

Impulsivity predicts the onset of drug use/crime, the severity of both behaviours and differentiates between specific types of drug user and/or offender. Impulsive individuals have an earlier age of onset for both drug use and criminality (Martínez-

Loredo et al. 2015; Parker & Morton, 2009; Silverthorn, Frick & Reynolds, 2001; Tarter et al. 2003; Taylor, Iacono & McGue, 2000) and high levels of impulsivity predicts the transition from controlled levels of recreational drug use to more problematic and compulsive patterns of use (Belin, Mar, Dalley, Robins & Everitt, 2008; Goldstein & Volkow, 2002) including continued drug use over time (Farley & Kim-Spoon, 2015). The dimensions of impulsivity (e.g. behavioural and cognitive) also differentiate between types of drug user and types of offender. For example, behavioural impulsivity is more strongly associated with delinquency among males and serious delinquency that is stable over time (White, Bates & Buyske, 2001; White et al. 1994). Violent offenders who commit crimes like aggravated assault have higher levels of impulsivity than other types of offender (Zhang, Wiczorek & Welte, 1997), those dependent on multiple substances (polydrug users) are more impulsive than those dependent on a single substance (O'Boyle & Barratt, 1993) and crack-cocaine users had higher levels of impulsivity than users of street heroin (Lejuez, Bornoalova, Daughters & Curtin, 2005). Each dimension of impulsivity reflects a different aspect of drug use and drug use severity (onset, maintenance and dependence) (Lane et al. 2003; Martínez-Loredo et al. 2015; Maurico et al. 2009; Moeller et al. 2001). Thus both recreational drug users and dependent drug users have higher levels of impulsivity than non-users (Doherty et al. 2013; Ersche et al. 2010; Vonmoos et al. 2013) and problematic drug users have higher levels of impulsivity when compared to controls and recreational users (Hoffman et al. 2006; Lane et al. 2007), which is not surprising since impulsive behaviour is part of the diagnostic criteria used in the Diagnostic and Statistical Manual of Mental Disorders - V (DSM-V, American Psychiatric Association, 2013) to diagnose substance dependence (see Evenden, 1999). Impulsivity also differentiates between offenders, specifically those who go on to become life-course persistent offenders and the adolescent limited offenders (Higgins, Kirchner, Ricketts & Marcum, 2013; Moffit, 1993; Moffitt, Caspi, Dickson, Silva & Stanton, 1996; Piquero, Moffitt & Wright, 2007). Although impulsivity differentiates between drug users and offenders and thus could be a factor that explains why some drug users go on to become offenders while others do not,

impulsivity is also a core symptom of other disorders, like ADHD and personality disorders, which further complicates this relationship.

There is a high co-morbidity between drug addiction (substance use disorders) and other disorders characterised by impulsive behaviour like ADHD (Nigg et al. 2006; Wilens & Morrison, 2011), conduct disorder and personality disorder (Sansone & Sansone, 2011; Skodol, Oldham & Gallaher, 1999; Thompson, Whitmore, Raymond & Crowley, 2015) and bipolar disorder (Pettinati, O'Brien & Dundon, 2013). Personality disorders and ADHD are not only more prevalent among drug users, but they are also more prevalent among offenders, however both are less prevalent in general population samples. 'Childhood ADHD among adult prison inmates ranges from 24% to 67% and adult ADHD ranges from 23% to 45%' (Gudjonsson, Sigurdsson, Young, Newton & Peersen, 2009, p. 65). However the prevalence rate of ADHD is much lower in the general population with ranges being between 0.44% to 3.6% of boys aged between 5-17, and only 0.6% to 1.2% of adults by age 25 will retain a full diagnosis while 2-4% will be in partial (Ford, Goodman & Meltzer, 2003; Holden et al. 2013; NICE, 2008). Prisoners are also ten times more likely to have an antisocial personality disorder than the general population (Fazel & Danesh, 2002) and about 62% of sentenced men in prison have a personality disorder (Prison Reform Trust, 2015). Thus it is likely that drug using offenders have higher rates of ADHD, personality disorders and drug addiction.

ADHD, substance use, conduct and personality disorders are often found to coexist alongside each other in offender populations (Panko, 2005; Soderstrom et al. 2004). For example, over 65% of those with ADHD also have one or more co-morbid disorders (Holden et al. 2013), a substance use disorder typically occurs in 13 to 23% of people living with ADHD (Robb, 2008; van Emmerik-van Oortmerssen et al. 2012) and nearly 60% of those with substance use disorders also have personality disorders (Skodol et al. 1999). Also some studies have found that ADHD alone does not increase the risk of substance dependence but the presence of concomitant conduct disorder does increase the risk of dependence on drugs (Fergusson et al. 2007; Flory & Lynam,

2003; Groenman et al. 2013). Thus certain disorders associated with impulsivity might help explain drug use among the offenders, particularly the most problematic drug users and most prolific offenders, but the literature examining the prevalence of these disorders (ADHD, conduct and personality) among recreational drug users who are not offenders or in treatment is less clear (see Connor, Gullo, White & Kelly, 2014; Donat, Walters & Hume, 1992; Macleod et al. 2004). Therefore this research will only focus on impulsivity as a possible third factor to explain the link between drug use and criminality, since the research continually shows impulsivity to be a good predictor of drug use among offender and non-offender samples, as well as being a strong predictor of offending. However, individual risk factors, like impulsivity and family factors are likely to interact with other factors creating a complex interrelationship that is difficult for researchers to disentangle, but the more risk factors a person is exposed to the more likely they are to be both a drug user and an offender.

It is a robust finding that the more risk factors a person is exposed to during childhood the more likely they are to become an offender and/or a drug user (Farrington et al. 2009b; Kaplow et al. 2002). For example, Kaplow et al. (2002) found children with 2 or more risk factors had more than a 50% chance of early onset drug use compared to children with no risk factors, while Farrington et al. (2009b) found that over 80% of convicted offenders had 4 or more risk factors before the age of 10. Thus the high risk children tend to be exposed to a childhood characterised by multiple risk factors, which is also when coping skills are being developed (Steinberg & Morris, 2001; Skinner & Zimmer-Gembeck, 2007). Thus parenting and family factors also influence the development of coping styles during this time and children will often model their parent's own coping (Abaied & Rudolph, 2010; Kliewer, Fearnow & Miller, 1996; Runchkin, Eisemann & Häggelöf, 1999). The cumulative effect of childhood risk factors also ties in with the impact of negative life events on people's later behavioural and emotional outcomes. However, ambiguities in the definitions and measurement of negative life events can make it difficult to draw firm conclusions

from the research. Despite the complex relationship the research suggests family factors, negative life events and individual factors such as impulsivity can increase the risk that not only will someone go on to partake in drug use and/or crime, but these factors have been shown to predict the severity of both behaviours over the life course. Thus it seems reasonable to hypothesise that family factors, negative life events and individual factors, like impulsivity, could be the third variable(s) underpinning drug use and criminality.

1.3 Onset

The onset of drug use and offending are for a large percentage of adolescents a fundamental, even normal, part of growing up (Moffitt, 2003; Aldridge, Measham & Williams, 2011). Moffitt (1993) found antisocial behaviour increased ten-fold during adolescence and it is a normal and for most a temporary part of growing up.

Subsequently drug use and delinquency are initiated, and increase across adolescence (Li, Duncan & Hops, 2001; Piquero, Farrington & Blumstein, 2007; Johnston, O'Malley, Bachman & Schulenberg, 2010; Schwartz et al. 2010) and initiation of these behaviours is influenced by two domains; peer group, and schooling (Dodge, Lansford & Dishion, 2006; Farrington et al. 2006; Fergusson & Horwood, 1999; Fuller, 2013; Laub & Sampson, 2003; Williams, Papadopoulou & Booth, 2012). Consequently, the subsequent discussion considers whether these factors influence the onset of drug use and offending, both directly and indirectly.

Onset of Drug Use

The majority of drug users initiate use in pre-adolescence and adolescence (Sloboda & Bukoski, 2003). However, for others drug use is initiated in early adulthood (Fothergill et al. 2008), mid-adulthood (Fothergill et al. 2009) and even old age (Kouimtsidis & Padhi 2007; Otto, 2002). There has been some controversy over

whether the age of onset is falling (Dennis, Babor, Roebuck & Donaldson, 2002; Hammersley et al. 2003; McKeganey & Norrie, 1999). However, the age of onset varies depending on the subset of the population being examined.

The mean age of onset for drug use amongst general population samples are much higher than for treatment or offender samples. Nurco et al. (1999) found male opiate addicts in treatment initiated drug use at a younger age (15 years old) compared to peer (age 17) and community controls (age 18), supporting other research in this area (see Hser, Huang, Chou & Anglin, 2007; Johnson, 2001; Makkai & Payne, 2003). More recent statistics from the Ministry of justice (2013) illustrate that the age of onset also varies among subsets of offenders since cannabis use was initiated by sentenced offenders in prison at age 14 but age 18 for offenders sentenced to community orders, however, Hammersley et al. (2003) found young offenders initiated drug experimentation at age 11-14. These findings are particularly important since initiating substance use before the age of 15 has been found to increase the risk of drug addiction in adulthood (Dishion et al. 1999; Odgers et al. 2008). It also increases the risk of other poor adult outcomes, including reduced educational attainment, dropping out of high school, unemployment, poor mental and physical health, criminality and imprisonment (de Boer et al. 2012; Green & Ensminger, 2006; Green et al. 2010b; Odgers et al. 2008; Slade et al. 2008). Also, the earlier the age of onset, the longer and more serious the drug using career tends to be (Chen, Storr & Anthony, 2009; Hser, Huang, Chou & Anglin, 2007; Johnson, 2001; Nurco et al. 1994; Pudney, 2002). Consequently problematic drug users have a lower age of onset, a lower age of intravenous drug use, an earlier age of onset for more regular drug use and men are over-represented (Brettville-Jensen, Melberg & Jones, 2005; Hser et al. 2007; Johnson, 2001). However, it must be noted that less than 2% of drug users go on to become drug dependent PDUs (Hammersley, 2011) and only 25% of heroin users go on to become dependent (Best, Day & Morgan, 2006) and yet drug policy tends to focus on this minority of PDUs, particularly those who are also prolific offenders, but ignores the majority of recreational drug users who control their use and do not offend.

The mean age of onset also varies depending on the type of drug being examined and there is a drug using hierarchy most users progress through (Aldridge et al. 2011) and the earlier the age of onset the more quickly users move through the drug using hierarchy (ages of first use of other drugs are much closer together) (Johnson, 2001). The onset of drug use tends to commence with the legal substances alcohol and tobacco (Brettville-Jensen et al. 2005; McIntosh et al. 2005; Tarter et al. 2006), followed by volatile substances (which includes glue, gas, aerosols and solvents) and cannabis, before users go on to use other recreational drugs, like LSD, ecstasy and amphetamines (Aldridge et al. 2011; Hser et al. 2007; McKeaney, McIntosh et al. 2004; Makkai & Payne, 2003). Whereas the age of onset for cocaine, crack and heroin tends to be much higher and for the majority used after other recreational drugs (ACMD, 2006; Doherty et al. 2008; Green et al. 2010a; Hser et al. 2007; Johnson, 2001), this is not true of all users (McCrystal, Percy & Higgins, 2006; Van Ours, 2001).

Once drug use is initiated with one substance it increases the likelihood of the person trying another substance. For example, ecstasy influences the initiation of cocaine and heroin (Reid, Elifson & Sterk, 2006; Martins, Ghandour & Chilcoat, 2005) and cannabis use is predictive of initiating ecstasy (Zimmerman, Wiottchen, Wasak, Hofler & Leib, 2005). Volatile substances, cannabis, alcohol and tobacco have been identified as 'gateway' drugs whose initial use predicts the initiation of other drugs (Brettville-Jensen et al. 2005; Doherty et al. 2008; Tarter et al. 2006). Cannabis is stereotypically identified as a 'gateway' to other drugs (Fergusson, Boden & Harwood, 2006).

However, this supposition has been heavily contested by other research (see Pudney, 2002), particularly since those who initiate volatile substance use by the age of 16 are 'over nine times more likely to begin heroin use by age 32' (Johnson, Schütz, Anthony & Ensminger, 1995, p. 159). Therefore, the gateway theory has been largely discredited (see Pudney, 2002) since most low level cannabis users, and most recreational drug users, will not go on to use more problematic drugs like heroin and crack or develop more problematic patterns of use (Aldridge et al. 2011; Gray, 2001; Hammersley, 2011).

The reasons and motivations given for initiating drug use vary across the research. Although initiation of drug use is often a result of exposure to and availability of substances (Aldridge et al. 2011; Fuller, 2011; McIntosh et al. 2005), research also indicates that drug use is initiated by the majority out of curiosity, regardless of age (Fuller, 2011; McIntosh et al. 2006). Fuller (2011) found the majority of pupils (54%) initiated drug use to 'see what it was like' regardless of the drug being used; 74% initiated cannabis use, 37% initiated volatile substance use and 51% initiated class A drug use for this reason. Drug use is also initiated for more hedonistic reasons, such as boredom, pleasure, enjoyment and risk-taking (Aldridge et al. 2011; Brown, 2010; McIntosh et al. 2005, 2006; Mayock, 2005), but research also emphasises the importance of friendships and peer group in drug initiation (Aldridge et al. 2011; Fuller, 2011).

Onset of Offending

The majority of research indicates that the peak ages of onset for offending are between 8-14 years old. Farrington et al. (2006) found that 50% of offenders committed their first officially recorded crime between the ages of 13-17, with burglary being the most common first offence. However, for self-reported offending the age of onset was much lower; 78% committed crime between age 10-14 with vandalism (70%) and shoplifting (40%) being the most popular offences. Self-report studies put peak age of onset at 13 to 16 years, while official data puts the peak age of onset at 16 (for a review see Piquero et al. 2003). These findings highlight the importance of differentiating between the onset of self-reported and officially recorded criminality, since age of first arrest is said to lag 2-5 years behind the age of the first illegal act (DeLisi et al. 2013; Farrington et al. 2006; Moffitt et al. 2008).

Early age of onset tends to be defined by the literature as before the age of 14 (Farrington et al. 2006; Tibbetts, 2009), although this is not the case for all studies (for an example see Taylor, Iacono & McGue, 2000). The age of onset is important

because the earlier delinquency is initiated the longer and more pervasive the offending career tends to be (DeLisi et al. 2013; Krohn et al. 2001; Piquero et al. 2004, 2007; Weisner & Capaldi, 2003). In contrast other research suggests the association between the age of onset and duration of offending career is relatively modest and is not consistent across research studies (Piquero, Farrington & Blumstein, 2007; Thornberry & Krohn, 2001, 2003). Thornberry and Krohn (2003) found that 60% of those who started offending at age 10 and younger, were no longer offending between the age of 19 and 22, supporting other research in this area, which identifies two distinct groups. For some, antisocial behaviour is confined to adolescence (begins and ends) whereas for others disruptive/antisocial behaviour begins in childhood, and although for some is limited to adolescence, 25-50% of this group will go on to become persistent offenders (see Moffitt, Caspi, Dickinson, Silva & Stanton, 1996; Veenstra et al. 2009). Therefore offenders tend to fall into two groups after initiation, adolescent-limited (those who mature out of antisocial/criminal behaviour and for whom it is a normal part of growing up) and life-course persistent offenders (who continue to offend through adulthood) (Moffitt, 1993, 2003). However life-course persistent offenders are rare (4-8% of offenders), at less than 10% of the male population (see DeLisi, 2006).

The earlier age of onset for offending and arrest, not only leads to longer offending careers spanning 17-30 years (DeLisi, 2006; Piquero et al. 2004) but also predicts the number of criminal convictions, serious violent offending, criminal versatility and higher recidivism rates, particularly among males (Cottle, Lee & Heilbrun, 2001; DeLisi, 2005, 2006; Farrington & Hawkins, 1991; Farrington et al. 2006; McCluskey, McCluskey & Bynum, 2006; Piquero & Chung, 2001). Earlier age of onset has also been linked to poor adult outcomes in other areas than offending, including poor physical and mental health, poor life success, a psychiatric diagnosis of behavioural disorders, poor social relationships and job underachievement (de Boer et al. 2012; DeLisi & Piquero, 2011; Moffitt, 2003; Piquero et al. 2010). Later onset of offending can occur and lead to habitual offending (Bacon, Paternoster & Brame, 2009; Eggleston & Laub,

2002), however research in this area is less common since it has been considered to be a rare, even non-existent, event (see Sohoni, Paternoster, McGloin & Bachman, 2014; Wiecko, 2014).

The continuity of antisocial behaviour initiated in childhood and through to adulthood, is well documented particularly for men (Farrington, 2005; Huesmann, Dubow & Boxer, 2009; Landsheer & van Dijkum, 2005; Loeber et al. 1997, 1999; Loeber, Farrington & Petechuk, 2013; Sampson & Laub, 2003). Delinquency in childhood is often measured by the onset of disobedient and conflictual behaviours with authority figures, before individuals go on to initiate more low level crimes like shoplifting, and firesetting, before progressing onto serious forms of criminality (Loeber et al. 1997, 1998). Therefore, the age of onset for more serious forms of offending tends to be later than minor misdemeanours, but even then most serious offenders have usually emerged by mid-adolescence (Loeber & Farrington, 1998; Loeber et al. 1993, 1998). In the CSDD the average age of onset for cruelty to animals was age 6; shoplifting was 10.8, 14.5 for burglary, 15 for drug dealing and 20 for robbery (Farrington, 1990a, 2001). Except for the life course persistent offenders who continue into adulthood, for most the prevalence of offending peaks between ages 15 and 19 (Farrington, 1986) after which most people mature out of this behaviour and settle down into a more conformist mode of living (Farrington et al. 2006; Moffitt, 1993; Sampson & Laub, 2003).

Thus age of onset is an essential component that differentiates between those who mature out of offending (adolescent-limited) and those who persist (life-course persistent), but research also suggests these groups initiate offending for different reasons. Moffitt (1993) found for the adolescent-limited offenders offending was due to antisocial peers and a gap between their biological and social maturity, which meant they were trying to act more adult by being delinquent and establish their independence. However the life-course persistent offenders' initiation of offending was more pathological in nature and was a result of biological risk factors (e.g. neuropsychological deficits) interacting with a disadvantaged and criminal

environment. Regardless of offender group, there are also similar reasons given for the initiation of certain crimes. For crimes with a financial reward, the initiation is often a rational decision implemented as a solution to a problem or need (Barry, 2006), while the initiation of non-financial crimes, particularly in adolescence, is often a result of boredom, pleasure, enjoyment and chasing 'the buzz' (Barry 2006; Farrington, 2008; Luallin, 2006; Wilmott, 1966). Although, the notion of pleasure has been omitted from much of the literature on crime, Katz (1988) and Presdee (2002) emphasise the emotionality of offending and the pleasure of transgressing societal norms. This explanation ties in not only with the characteristics of adolescence, which tend to be dominated by hedonism and living for the moment, but as Ferrell (1993, p.71) argues 'the illicit acquisition of late capitalist consumer goods' is tied to this seduction. Also the importance of fun and togetherness in initiating criminal activities, particularly among socio-economically deprived groups of young people and gangs (Downes, 1966), emphasises the significance of peer groups in the initiation of offending, particularly in certain social contexts.

Summary of Onset

The onset of drug use and crime are typically initiated in adolescence around the same age. The onset for drug use ranges from 7 to 15 years old (Farabee et al. 2001; Nurco et al. 1999), and the onset of offending is between the ages of 8 and 14 (Farrington 2008). Initiating one behaviour is a high risk predictor for initiating the other behaviour. However for most, both behaviours will be confined to adolescence and will be a normal part of growing up (adolescent-limited), while for a small minority both behaviours will persist into adulthood and become an integral and permanent feature of their lives (life-course persistent) (Moffitt, 1993, 2003). Thus age of onset may help to disentangle the relationship between drug use and criminality, particularly if one behaviour is initiated before the other.

The majority of drug users and offenders will progress up a hierarchy of severity after initiation for both drug use and crime. Legal drugs like alcohol and tobacco precede illicit drug use (Pudney, 2002), while minor low level delinquency tends to precede more serious crimes (Loeber et al. 1998). For some drug use will be initiated first, while for others offending will be initiated first, although the research on which behaviour comes first is inconclusive, contradictory and complex (cf. Farabee, Joshi & Anglin, 2001 and Kaye, Darke & Finlay-Jones, 1998, for a review see Bennett & Holloway, 2007). Once both behaviours have been initiated, for the adolescent limited offenders, recreational or experimental drug use and minor offending are likely to be a temporary and normative feature of adolescence. In contrast the life-course persistent offenders are more likely to progress up the hierarchy of severity for offending, and for some, drug use, until a minority become the most prolific offenders who also tend to be the most problematic drug users. The most prolific drug using offenders represent a minority of both the offender population (10%) and drug using population, but commit a disproportionate amount of crime (50% of all crime) and constitute some of the most problematic drug users (Hammersley, 2011; Home Office, 2007; UKDPC, 2008). However, not all life-course persistent offenders will use drugs or progress up the drug using hierarchy to develop more problematic patterns of drug use. Instead the majority will remain recreational (controlled) drug users (Ministry of Justice, 2013; UKDPC, 2008), while other offenders will desist from offending in adolescence but continue to use drugs recreationally into adulthood (Hammersley, 2011). What is clear is that most drug use does not result in drug related crime and most drug users are not offenders (excluding the criminality associated with the possession of drugs) (Stevens, 2011).

Drugs and crime are initiated for similar reasons, including boredom, pleasure, excitement and enjoyment. These have been identified as leisure values among disassociated young people by Downes (1966), and are similar to Matza and Syke's (1961) subterranean values and Miller's (1958) focal concerns, all of which can be used to explain the initiation of drug use and criminality as an escape from the

banality of everyday life. Thus leisure values and acting like an adult are the main reason for initiating drug use and offending, particularly among adolescent limited offenders (McGloin & Stickle, 2011; Moffitt, 1993; Parker et al. 1998). However, for male life-course persistent offenders the socioeconomic environment and community where they grow up also impacts on their initiation of delinquency and drug use (Beyers et al. 2003; Brook et al. 2011; Herrenkohl et al. 2008; Kohen, Leventhal, Dahinten & McIntosh, 2008; Moffitt, 1993). Initiation and maintenance of drug use and criminality is also influenced by other factors including impulsivity, which predicts an earlier age of onset for both drug use and delinquency (de Wit, 2008; Silverthorn, Frick & Reynolds, 2001; Taylor, Iacono & McGue, 2000), schooling and peer group.

Peer Group

Friends are an important part of the transition from childhood to adulthood and the process of maturation, including their personal development and adjustment (Marsh, Allen, Ho, Porter & McFarland, 2006; Reitz et al. 2014; Vitaro et al. 2001). Peers provide adolescents with a sense of belonging, an identity, cultural interests (i.e. fashion, music) and often status (Wenar & Kerig, 2000). As children get older peer influence increases, as they become independent and autonomous from their parents, and time spent with the family decreases (Sussman, Pokhrel, Ashmore & Brown, 2007; Wang, Dishion, Stormshak & Willett, 2011). According to the CSDD the social influence of parents changes to male peers around age 14 when parents of antisocial boys reduce parental management (called premature adolescent autonomy), which predicts drug use and delinquency (Dishion, Nelson & Bullock, 2004; Farrington et al. 2009b). Antisocial activity and drug use is used by peer groups to demonstrate maturity and status via rebellion, particularly among adolescent limited offenders (Moffitt, 1993). The more time spent socialising with peers, the more likely peers are to affect attitudes and behaviours both positively and negatively (Seaman &

Ikegwuonu, 2010; Sutherland, 1974). Thus prosocial peers act as a protective factor against the initiation of delinquency and drug use while antisocial peers are a risk factor for criminality and drug use (Battin, Hill, Abbott, Catalano & Hawkins, 1998; Fallu et al. 2010; Ferguson & Meehan, 2011). Peer influence is thus important in adolescence but wanes in adulthood (Gardner & Steinberg, 2005; Steinberg & Monahan, 2007), and can have both short and long term effects on an individual's behaviour (cf. Snyder et al. 2005 and Nelson & Dishion, 2004).

Young people are more likely to associate with likeminded peers, who have similar interests, similar backgrounds and who partake in activities consistent with the group; a finding that holds true for young people involved in crime and drug use (Knecht et al. 2010; Prinstein & Dodge, 2008; Schaefer, 2010). Antisocial delinquent individuals are also more likely to be rejected by their prosocial peers, which increases the likelihood they will associate with other delinquent drug using peers experiencing similar problems (Fergusson et al. 2002). For example, Friday et al. (2005) found delinquent children were five times more likely to associate with delinquent peers than non-offenders, while Nurco and colleagues (1993, 1994) found that even at age 11 problematic drug users had a strong disposition towards selecting deviant associates.

The peer group provides a learning environment conducive to delinquency and drug use (Becker, 1963; Sutherland, 1947) and the more time spent associating with delinquent peers, particularly when partaking in unstructured socialising, the higher the risk of initiating delinquency and drug use (Brook et al. 1992; Kosterman, Hawkins, Guo, Catalano & Abbott, 2000; McGloin & Shermer, 2009). The peer group provides environments where attitudes conducive to delinquency and drug use are shared, alongside techniques and information (Akers, 2009; Aldridge et al. 2011; Becker, 1963; Fuller & Hawkins, 2014; Prinstein & Dodge, 2008; Sutherland, 1947). Becker (1963) emphasised the importance of peer initiation in showing others how to use cannabis and how to appreciate the effects of cannabis, while van Mastrigt and Farrington (2010) showed how the more serious offenders convinced younger peers

to join them in criminal acts, supporting other research in this area (Moffitt, 1993; Warr, 1996). The role of older peers as mentors in the initiation of crime and drug use, including intravenous drug use, is well documented (Morselli, Tremblay & McCarthy, 2006; Trudgon & Evans, 2010). Through social interaction peer groups not only inform young people's decisions about drugs and crime, but also positively reinforce delinquency and drug use (Dishion & Patterson, 1997; Patterson, 2002). This mutual influence that occurs between peers is often referred to in the literature as 'peer contagion' or 'deviancy training'⁴ and results in group homogeneity where children learn to adopt the beliefs, behaviours and values of their affiliated peer group (Akers, 2009; Dishion & Tipsord, 2011; Pratt et al. 2010; Synder et al. 2010). Children often initiate the behaviours of the group, which could be a new form of deviance or drug use, so they fit in (Henry, 2008; Patterson et al. 2000). Group conformity is one of the key reasons given for initiating both behaviours. McIntosh and colleague's (2006) found 16% initiated drug use out of a desire to conform to their peer group while Fuller (2011) found 19% of pupils tried drugs for the first time because their 'friends were doing it'. The influence of peers in the commission of crime is also significant, particularly for those under the age of 17, since research suggests they are more likely to commit crime with other boys who live nearby and who are of a similar age (Reiss & Farrington, 1991). Group conformity (homophily) is common in adolescents who want to avoid ridicule and be accepted by their peers (Kraeger, 2007; Rebellon, 2006; Warr, 2002), which brings about specific rewards within the peer group (popularity, status, respect) (Prinstein & Cillessen, 2003). Thus drug use and crime are an important part of socialising with peers and conforming to group norms, to the extent that peer groups do not always see their behaviours as antisocial (McSweeney, May & Hearnden, 2007).

It is difficult to distinguish between peer influence, group conformity, peer pressure and group offending since research rarely differentiates between them (McGloin &

⁴ Deviancy Training is where antisocial behaviours, thoughts and conversations are likely to elicit positive reinforcement from their peer group, which increases the frequency of deviancy over time (see Prinstein & Wang, 2005).

Stickle, 2011; Warr, 2002). However the use of more explicit and coercive forms of peer pressure traditionally thought to encourage drug use and offending are largely unsupported (Aldridge et al. 2011; McIntosh et al. 2003, 2006; Warr & Stafford, 1991). Instead peers have an influence because of the norms established in the group and because their friends admire and respect them, and their opinions (Susman et al. 1994). Peer groups also provide access to drugs and new methods of committing crime. For example, peers provide opportunities to be part of specific criminal enterprises (McAndrew, 2000) and the social supply of drugs among friends has become increasingly common (Aldridge et al. 2011), with some peers combing monetary resources to buy drugs for the group (Duffy, Schafer, Coomber, O'Connell & Turnball, 2008; McCrystal, Percy & Higgins, 2006). Thus group offending and drug use is also favourable as it reduces the risks associated with both behaviours (Boys et al. 1999; McGloin & Stickle, 2011; Zimmerman & Vásquez, 2011). Therefore despite the complicated dynamics within peer groups, they provide a reference point of acceptable and unacceptable behaviour, social norms, values, information, and a safe environment in which to experiment with drugs, be delinquent and develop individual identities (Ashmore, DelBoca & Beebe, 2002; Dodge, Dishion & Lansford, 2006; McCord & Conway, 2002; Sussman, Pokhrel, Ashmore & Brown, 2007).

Despite being one of the most heavily researched areas, the mechanisms underpinning the social transmission of delinquency and drug use among peers is heavily contested and difficult to determine. Some research suggests peer selection is more influential when it comes to delinquency (Haynie & Osgood, 2005), socialisation is more influential when it comes to drug use (Simons-Morton & Chen, 2006), while other evidence suggests selection and socialisation are equally applicable to drug use and delinquency (Dishion & Owen, 2002; Glifford-Smith, Dodge, Dishion & McCord, 2005; Laird Criss, Pettit, Dodge & Bates 2008). The relationship has also been shown to be bidirectional in nature with peers encouraging the initiation of drugs and crime by providing opportunity, while partaking in these activities may entice new delinquent drug using friends (Dishion & Owen, 2002; Poulin, Kiesner, Pedersen &

Dishion, 2011). Also, individuals already prone to antisocial behaviour will take advantage of the increased opportunities to partake in drug use and crime offered by deviant peer groups (McGloin & Stickle, 2011; Thornberry et al. 2003) suggesting a facilitation rather than peer selection effect. These differences also differentiate between types of offenders since the adolescent-limited offender's behaviour is influenced by peers whereas the life-course persistent offenders are more likely seek out delinquent peers and take advantage of the opportunities they provide (McGloin & Stickle 2011; Moffitt, 1993, 2003). Thus the relationship between peers and their influence on the initiation of drug use and offending is multifaceted and unclear, particularly since it is also affected by a number of other factors (for a review see Müller & Minger, 2011). The degree of influence peers have on an individual may also depend on the social context. For example, peers who socialise outside of school (or hang out in public places) unsupervised are more prone to initiating antisocial behaviour and drug use (Dishion, Bullock & Keisner, 2008) than those who socialise at school (Beyers et al. 2003; Flannery et al. 1999; Kiesner & Pastore, 2005; Keisner et al. 2004, 2010).

School

School represents a conventional institution, responsible for instilling positive prosocial attitudes and behaviours in children (Hirschi, 2009) and having strong bonds to school predicts lower levels of initiating deviant behaviour, including delinquency and drug use (Catalano, Haggerty, Oesterle, Fleming & Hawkins, 2004; Dornbusch, Erickson Laird & Wong 2001; Hart & Mueller, 2013; Payne, 2008, 2009). However if it is a high delinquency school in a high delinquency area it can also be responsible for instilling antisocial attitudes and behaviours that increase the likelihood of initiating delinquency and drug use among its pupils (Farrington, 2009). Students who dislike school are less likely to develop strong attachments to school and are more likely to initiate antisocial behaviours, including delinquency and drug

use (Bond et al. 2007; Catalano & Hawkins, 1996; Fothergill et al. 2008; Sampson & Laub, 1993). Thus school disengagement, which is characterised by misbehaviour, truancy, getting suspended, dropping out of school, academic underachievement and poor grades and is both directly and indirectly linked to the initiation of delinquency and drug use (Bachman et al. 2008; Fothergill et al. 2008; Kohler & Reese, 2008; Lochner & Moretti, 2004).

Misbehaviour and delinquent behaviour in school predicts criminality and drug use (Weerman et al. 2007) and those partaking in school delinquency affect the school environment (Hirschfield & Gasper, 2011; Li & Lerner, 2011). The school environment (disciplinary protocols, teachers and normative beliefs) also predicts the level of disorder within a school (Fox & Harding, 2005; Gottfredson et al. 2005; Kimmel & Mahler, 2003) and thus increase the likelihood of delinquency, crime and drug use within certain schools (Brezina et al. 2001; Hales, Nevill, Pudney & Tipping, 2009; Kumar, O'Mally, Johnston, Schulenberg & Bachman, 2002). For example, if the school is tolerant of substance use, students are more likely to use drugs and vice versa, even after controlling for a student's own disapproval (Ennett et al. 1997; Kumar et al. 2002) and school maybe where drugs are purchased to use. Fuller (2012) found 51% of pupils who had used volatile substances had obtained them from school and younger children aged 11-13 were more likely to obtain drugs from school (26%) the last time they had used them than older children. Also, problem behaviour in school before age 15 is related to problematic drug use (Hser Huang, Chou & Anglin, 2007), while the CSDD showed that attending a high delinquency school was one of the main risk factors for early onset of offending (before age 20) (Farrington, 2009). Schools also facilitate incidental exposure to deviant classmates, which can increase the risk of antisocial behaviour including drug use (Gaviria & Raphael, 2001; Snyder et al. 2010). Antisocial classmates and the climate of a school may also engender bullying and feelings of insecurity among students, which may promote weapon carrying and violence (Stephens 1993). Bullying is also a predictor of drug use, particularly early initiation, and delinquency (Bender & Lösel, 2011; Bolognii et al. 2007). Antisocial

peers also disrupt the class, which has been associated with decreased academic achievement, disruptive behaviour and other students getting suspended (Figlio, 2007; Gottfried, 2014). The characteristics and climate of a school can also affect school failure, truancy, exclusion and early drop out (Brookmeyer, Fanti & Henrich, 2006; Gottfredson, 2001), which are all linked to the initiation of drug use and criminality (Fothergill et al. 2008). Thus the school climate and exposure to antisocial class mates can affect the initiation of drug use and delinquency both directly and indirectly, by impacting on other school factors like truanting and exclusion.

Dropping out of school can be voluntary (truancy) or implemented by the school as a form of punishment intended to stop bad behaviour (exclusion). Both truanting and exclusion increase the risk of antisocial behaviour and drug use, particularly problematic drug use (Estévez & Emler, 2010; Fothergill et al. 2008; Loeber & Farrington, 2000; McAra, 2004). Exclusion and truancy have been shown to predict the initiation of substance use and offending (Henry & Huizinga, 2007a; Henry et al. 2009; Seeley, 2008; Sweeten, Bushway & Paternoster, 2009; Thornberry & Henry, 2009). Brunswick and Titus (1998) found heroin addicts were twice as likely to have dropped out of school as non-drug users, and the odds of offending among those who truanted was three times higher than non-truants (Graham & Bowling, 1995). Henry et al. (2009) even go as far as to suggest a causal relationship exists between truanting and cannabis initiation, while other research suggests there is a reciprocal relationship between truancy and drug use and offending (Ball & Connolly, 2000; Chou, Ho, Chen & Chen, 2006). Prior to being permanently excluded from school 44% of students with no recorded offences obtained a criminal record following exclusion, and 5% started their criminal careers in the same month they were excluded (Berridge et al. 2001). In relation to drug use Fuller (2011) found 8% of 11-15 year olds who had truanted or been excluded from school had used Class A drugs in the last year and 12% had used drugs at least once a month compared to 1% of those who had never truanted or been excluded. Also the more days truanted the greater the individual's drug use (Seeley, 2008). Thus boys who had been excluded from school

were more likely to have used drugs, been in trouble with the police, arrested and summoned to court than those still in school (McCrystal et al. 2006). Since the majority (70-77%) of those who truant do so in pairs and groups (Henry & Huizinga, 2007a), truants spend large amounts of unsupervised (by parents or teachers) time with peers outside of school, what Stoolmiller (1994) refers to as 'unsupervised wandering'. Unsupervised wandering leads to the initiation of antisocial behaviour and substance use (Henry & Thornberry, 2010; Keisner et al. 2004; McGloin & Shermer, 2009; Osgood & Anderson, 2004) often as part of 'street youth culture' (MacDonald & Marsh, 2005), since those alienated from school tend to be orientated on play and a search for fun, which often includes delinquency and drug use (Lotz & Lee, 1999).

Thus the research on early school dropout is mixed; some research suggests exclusion is more weakly related to drug use than truancy, but exclusion is more strongly related to delinquency (Smith, 2006). However, the relationship between truancy, drug use and offending can also be bidirectional and indirect. Early school drop out has been attributed to existing drug use and delinquent behaviour. There is evidence to suggest criminal careers have usually started before being excluded from school (Berridge et al. 2001; Martin et al. 1999) and those who have already initiated drug use (cannabis) are more likely to drop out of school than those who have not initiated drug use (Thornberry & Henry, 2009). Early school drop out also has an indirect effect on the initiation of drug use and delinquency. Those who are excluded or truant have a lack of attachment to school, which has already been shown to be linked to the initiation of delinquency and substance use (Ensminger et al. 2002; Jessor et al. 1991; Nurco et al. 1996), but they are also more likely to under achieve at school.

Low school achievement is one of the strongest predictors of offending and onset of delinquency (Crosnoe et al. 2002; Farrington, 2003; Loeber, Farrington, Stouthamer-Loeber & van Kammen, 1998; Maguin & Loeber, 1996) and increases the risk of substance use initiation in adolescence and early adulthood, including problematic use (Fothergill & Ensminger, 2006; Fothergill et al, 2008; Henry, Smith & Caldwell,

2006; Obot, Hubbard & Anthony, 1999). In the CSDD low junior school achievement was an independent predictor of convictions up to age 32 (Farrington, 1990b) and low school achievement at age 8-10 was one of the best explanatory predictors of adult convictions between ages 21 and 40 (Farrington, 2000), while Ellickson et al. (2004) found low grades in adolescence predicted initiation of cannabis use by grade 10. Thus academic achievement has been shown to be a boy-specific protective factor against future offending and drug use (Farhat, Simons-Morton & Luk, 2011; Sebates, 2008; Stronski, Ireland, Michaud, Narring & Resnick, 2000; Wright & Fitzpatrick, 2004). However other research indicates there is no evidence to suggest that lower levels of academic achievement lead to drug use and delinquency, particularly serious delinquency (Agnew, 2001; Fergusson, Horwood & Beautrais, 2003; Johnson-Reid, 1998) and actually the reverse is true; that delinquent, drug using children are more likely to under achieve at school due to their delinquent drug using behaviour (Fergusson, Horwood & Beautrais, 2003; Tanner, Davies & O'Grady, 1999). Early use of cannabis contributed to the rate of educational failure, in relation to high school and university achievements (Horwood et al. 2010) and delinquency by age 16 reduces the likelihood of graduating from both high school and college (Ward & Williams, 2014). Delinquent, drug using adolescents are also more likely to be arrested by the police and imprisoned, which also has a negative impact on finishing high school (Hjalmarsson, 2008; Kirk & Sampson, 2013; Webbink et al. 2013), while frequent cannabis users were less likely to finish high school and were five times more likely to leave school without any qualifications (Fergusson et al. 2003; King, Meehan, Trim & Chassin, 2006; Lynsky et al. 2003). Whatever the direction of the relationship failure to do well at school also leads to failure to get a job, lower wages and higher levels of unemployment, which effects delinquent behaviour and crime in adulthood, as well as predicting the onset of problematic dug use in adulthood (Green et al. 2010a; Lochner & Moretti, 2004; Ringel, Ellickson & Collins, 2007; Snyder & Sickmund, 2006). Thus the exact nature of the relationship between school factors, drug use and delinquency is problematic particularly since children suffer from multiple school problems.

To complicate matters further the school factors also predict each other; school performance is a predictor of truancy (Henry & Huizinga, 2007b), truancy leads to poor academic performance (Oluremi, 2013), teachers can influence truancy (Ishak & Fin, 2013) and low school bonds predict low academic performance and reduce the likelihood of completing school (Bond et al. 2007). Other factors also affect the relationship between school disengagement, delinquency and drug use, like peers (Lopez, et al. 2009) including peer friendship quality (Véronneau et al., 2010), ethnicity (Lotz & Lee, 1999) and socioeconomic status (Li & Lerner, 2011; Newcombe et al. 2002). Research has also found a hidden group of drug using offenders who continue to attend school, despite having high levels of drug use and dissatisfaction with school (McCrystal, Percy & Higgins, 2006), while other evidence shows that the majority of those with school problems are not delinquent (Huizinga et al. 2000; Loeber & Farrington, 1999) suggesting drug use, delinquency and school dissatisfaction are caused by other risk factors. For example maltreated children also have problems at school (Boden, Horwood & Fergusson, 2007). Despite the complicated relationship school factors can also be used to differentiate between types of offenders. Adolescent-limited lack consistency in their antisocial behaviour and although they may commit crime and use drugs they may also continue to obey school rules thus faring better in school than the life-course persistent offenders who tend to have lower levels of educational achievement (Moffitt, 2003).

Summary of peers and schools

The onset for substance use and crime is attributable to a number of factors across a number of spheres of influence that include peers and school, which supports both the theories of socialisation (Akers, 1998) and the social developmental model, which includes prosocial and antisocial pathways (Catalano, et al. 1996, 1999). Strong social bonds to school, teachers and prosocial peers have a protective effect against initiating drug use and delinquency (Chassin, Flora & King, 2004; Hirschi, 2009; Li et

al. 2011; Smith, 2006; White et al. 2006). However, peer and school factors also influence the initiation of drug use and delinquency in adolescence and can help to differentiate between adolescent-limited offender and life course persistent offenders.

Nevertheless none of the relationships between peers, school, drug use and offending are straightforward, and the interconnectedness of the peer and school related risk factors that underpin the initiation of drug use and offending are difficult to disentangle. The mechanisms that underpin the influence school factors and peers have on drug use and offending are ambiguous. For example, it is unclear whether peer socialisation or selection is more influential on the initiation of drug use and delinquency, just as it is unclear whether school disengagement causes drug use and delinquency or if drug use and delinquency causes school disengagement. The relationships between initiating drug use and offending, and the school and peer factors is often bidirectional and is often complicated further by mediating factors. For example, there is evidence to suggest that social factors like neighbourhood and socioeconomic status, impact on the interrelationships that exist between school factors, peers and the initiation of drug use and offending. Thus the initiation of drug use and delinquency is attributable to a combination of factors from both the school and peer domains, but problems at school and having antisocial peers may also be the result of other factors, like childhood maltreatment and dysfunctional family relationships, which further complicates the web of factors underpinning the drug-crime relationship. What is clear from the literature is that both behaviours (drug use and offending) are often implemented to fulfil a number of functions in some people's lives.

1.4 Functionality of Drug Use

Research suggests that drugs fulfil certain functions in people's lives and these functions are associated with whether drug use is recreational or problematic (Boys, et al. 2000, 2001b). Therefore, the functionality of drugs affects the continuation,

severity and frequency of drug use, as well as the drugs being used. The functions reflect a person's lifestyle at a specific moment in time and are therefore susceptible to change (Measham et al. 1998) influenced by maturation and key life events called 'turning points' (Elder, 1986). The functionality of the drugs being used and the role they fulfil may also determine the link, if any, that exists between drug use and criminality. The purpose of the following discussion is to examine the functionality of drug use and how this relates to offending in an attempt to provide a more comprehensive understanding of the drug-crime relationship. In order to facilitate this discussion drug use has been categorised into three functions: recreation; self-identity and lifestyle; and emotional control.

Recreation

Although omitted from the official discourse, the majority of people use drugs because they find the effects pleasurable (Brunelle et al. 2005; Hunt & Evans, 2008; McIntosh et al. 2005; Race, 2009). For these people, drugs become an integral aspect of their leisure pursuits, including socialising with friends, going to the pub, clubbing, and getting intoxicated at weekends (Boys et al. 1999, 2001b; Egginton & Parker, 2002; Measham & Moore, 2009; Parker, et al. 2002). Drugs can also help to facilitate recreation, enabling people to dance all night or to drink more heavily (Ayres & Treadwell, 2012; Boys et al. 2001b; Mayock, 2005; Wilson, 2007). Alongside alcohol, drugs have become ever more important in the pursuit of 'determined intoxication' characteristic of contemporary society and macho club culture (Hutton, 2006; Measham & Brain, 2005). Although recreational drug use has become increasingly widespread, even 'normalised' (see Aldridge et al. 2011), recreational drug users tend to implement boundaries of acceptability to ensure their drug use remains controlled and non-problematic (Boys et al. 1999; Hathaway, 2004; McDonald & Marsh, 2002; Moore & Miles, 2004).

The majority of recreational drug users are poly drug users (Redman, 2010; Williams & Parker, 2001) and the most popular recreational drugs being used at present are cannabis, powder cocaine, ecstasy (MDMA), amphetamines, mephedrone, ketamine and LSD (Home Office, 2013; Winstock, 2014). For the majority of recreational drug users heroin and/or crack have no place in their recreational drug using repertoires (Boys et al. 2001a; Measham & Moore, 2009), however, there is some evidence to suggest that heroin and crack are used in a controlled and recreational manner by a very small proportion of recreational drug users (Measham & Moore, 2009). The research shows that for some people heroin use can be controlled without the negative health and social outcomes stereotypically associated with heroin users; people are making a conscious decision to use heroin in a recreational capacity in adulthood (see McSweeney & Turnbull, 2007; Shewan & Dalgarno, 2005; Warburton, Turnbull & Hough, 2005).

For many people, recreational drug use is confined to adolescence when the desire to partake in risky behaviours and be rebellious is common (Zucker, 2008). However, the delayed transition to adulthood in contemporary society has meant recreational drug use is being maintained into early adulthood (Aldridge et al. 2011; Williams & Parker, 2001), when people will either mature out of and stop using drugs recreationally or continue to use drugs recreationally throughout their adult life (Pearson, 2001).

Recreational Drug Use and Offending

The majority of people who use drugs recreationally never partake in criminal behaviour, other than the illegality of their drug use (Parker, et al. 1998, 2002). For others delinquency and antisocial behaviour will occur concurrently with recreational drug use with both behaviours limited to adolescence (Moffitt, 1993; Parker & Egginton, 2002). Although some will mature out of both behaviours, others will hit barriers that prevent this maturation, such as being arrested or slipping into more

problematic patterns of drug use, which means both behaviours extend into adulthood (Moffitt, 2006). However, for the majority of this group, there is no connection between their criminality and drug use (Ministry of Justice, 2013; UKDPC, 2008) and some will desist from crime in adolescence but continue to use drugs recreationally in adulthood (Hammersley, 2011). The majority of recreational drug users, including drug using offenders, do not commit crime to fund their drug use, but pay for their drugs through legitimate means, including wages, benefits and pocket money (McSweeney & Turnbull, 2007; Parker et al. 2002; Shewan & Dalgarno, 2005). Although not related to crime *per se* there is a growing body of evidence suggesting that 'sorting out' friends with drugs (small scale drug supply) is becoming increasingly popular amongst recreational drug users (Aldridge et al. 2011; Duffy et al. 2008; South, 2004). However this does not appear to be motivated by financial reasons and is said to act as a 'filter' to protect recreational drug users from the more criminally involved drug dealers. Thus the majority of recreational user-dealers do not see the 'sorting of friends' as a criminal offence and only a few do it to pay for their own drug use (Aldridge et al. 2011; Duffy et al. 2008).

Research has shown that some people partake in delinquent and antisocial behaviour for the same hedonistic and recreational reasons that they use drugs (Katz, 1988; McSweeney, May & Hearnden, 2007; Presdee, 2000); life as a party (Wright & Decker, 1997). Drugs and crime are part of some people's leisure activities, particularly those who are socially excluded and marginalised from society (Ayres & Treadwell, 2012; Rojeck, 1995; Wilson, 2007). People, who are unemployed, socially excluded and marginalised from society are more likely to use drugs (Coulthard et al. 2002) but may not have the money available to pay for them. Among this group, crime may be committed to fund their drug use, even recreational drug use, but this is often linked to wider patterns of general consumption and the idea that all leisure activities, including drug use, cost money (Collison, 1996; Simpson, 2003). Crime is often committed in these instances to pay for everyday goods (food, rent, clothes) and services (electric, water) not just drugs, because for some 'drugs and crime can bring

cash in to social networks and neighbourhoods that have few other economic resources' (Hamersley, 2008 p.77). Thus among some groups of people recreational drug use and criminality are a normal and functional part of their everyday lives.

In these environments drugs and criminal activity also play an important role in being socially accepted by friends and are integral to building relationships and friendship networks (Brunelle et al. 2005; Chainey & Stephens, 2014). Drugs and criminality are an integral part of hanging out and socialising with friends (Burr, 1987; Rebellon, 2006). Offenders will use drugs recreationally with their peers in the same social context (pubs and clubs) as non-offenders, but they may also use drugs to celebrate a successful crime or to facilitate a crime (Ayres & Treadwell, 2012; Menard et al. 2001; Wright & Decker, 1997). Therefore, for many people drugs and crime coexist in their life, undermining the dominant ideology that crime is committed to fund drug use.

For the majority of recreational drug users there is no link between their drug use and any offending they are involved in, even if they are drug using offenders. Instead drugs and crime fulfil a number of functions in their lives that may be limited to adolescence or maintained throughout the life course. Either way the two behaviours will be maintained independently and coexist as part of their everyday lives rather than being causally related (Collison, 1996; Hammersley et al. 2001; Webster et al. 2006).

Self-Identity and Lifestyle

For some people drugs are an integral aspect of their social identity, self-identity and image, but do not always define who they are (Collison, 1996; Hammersley et al. 2001; Niland et al. 2013). For other people, their drug use demarcates their lifestyle and is a defining feature of their self and social identity (see Preble and Cassey, 1969). In such situations, drug use can be problematic and addiction can be seen as an extreme of a consumption identity (see Bailey, 2005), although this is not always the case.

Drug use and choice of drug can be about constructing a mature (or immature) self-image and 'trying different personalities' (Chainey & Stephens, 2014). Drug use can also be about social acceptance (Fuller, 2010; Parker et al. 1998) and be an integral part of people's social identity and lifestyle (Collison, 1996; Redman, 2010), particularly in contemporary society where drugs are used to relax and 'reduce the stresses of the working week' (Williams & Parker, 2001 p.397). Drugs also facilitate peer social acceptance and enhance group solidarity (Person, 2001; Van der Poel, et al. 2009), while also providing people with the confidence to interact, socialise and form relationships and friendships (Boys et al. 2001b; Chainey & Stephens, 2014). It is well documented that drugs are also used as 'performance enhancers' in every aspect of some people's lives including work, study and leisure, which feeds in to and helps to construct their social identities (Evans-Brown et al. 2012; Lasco, 2014; Sherman et al. 2009). Drugs have always been associated with adolescence, youth culture, fashion and music (Hammersley, Khan & Ditton, 2002; Wilson, 2007) and the drugs used to construct these identities are usually transient and change alongside music tastes and fashion; however, they can also lead to more problematic patterns of use (see Wilson, 2007, 2008), particularly for those who are socially excluded (Melrose, 2004).

Often drugs are an integral aspect of constructing and reaffirming an identity that facilitates survival in the individual's wider social context (Collison, 1996; Treadwell & Ayres, 2014; Webster, MacDonald & Simpson, 2006; Winlow, 2001). However, drugs can also be a reaction to a lack or crisis of identity or a response to the effects of racism (see Obama, 2004 as cited in Stevens, 2011). Therefore, drugs can provide a transient cultural identity (Hammersley et al. 2002; Redhead, 1997; Wilson, 2007), an adaptive identity (Niland et al. 2013) or an escape from a conventional identity, whether it is temporary or permanent (Erikson, 1968; Meleci, 1993). Drugs are also consumed to enhance individuals both in terms of appearance (see Evans-Brown et al. 2012) and terms of performance (i.e. steroids), not only to meet life's challenges, but as a form of self-improvement that impacts on both the self and social identity (see

Quintero & Nichter, 2011). Drugs can also be used to annihilate the self (Brown, 2010).

Thus drugs are just another cultural commodity consumed by individuals, alongside fashion and music, which construct and improve their lifestyles (Douglas & Isherwood, 1996; O'Mally & Mugford, 1991). Drugs can also play a function in that they help individuals to fulfil certain lifestyle commitments and facilitate mundane activities; to lose weight, watch TV, aid concentration when studying and to assist with work (Boys et al. 1999, 2001b). Some people also use drugs because they are disillusioned with their life and perceive that they have 'nothing to lose' (Brunelle et al. 2005), while for others it is a normalised part of their everyday environment and lifestyle (Redman, 2010), which can also involve offending and crime. Drug use is for some a way of coping with a risky lifestyle characterised by crime, and sometimes homelessness (Baron, 2004; Wilson & Widom, 2009), however it also provides a type of stability for other more mainstream drug users. Stability is created via 'parallel lives' that counter-balance the uncertainties of everyday life and help people to regain control over their everyday lives, which for some is an integral aspect of young people's social adjustment and well being (Moore & Miles, 2004). Therefore drugs are an important part of self-medication for the socially excluded (MacDonald & Marsh, 2002) but they are also functional in the everyday lives of those who are socially included (Boys et al. 2001b; Lasco, 2014).

Drug Use, Self-Identity and Offending

Whilst a significant proportion of people who use drugs in the construction of their identity will not offend, others will be involved in both drug use and offending with both being integral aspects of their lifestyle, identity and image (Collison, 1996; Granic & Patterson, 2006; Hammersley et al. 2003). Like drug use, criminality is a temporary aspect of some youth cultures (see Burr, 1987; Collison, 1996; Wilson, 2007) and is about constructing a mature self-image that facilitates their acceptance in to the adult social world (Granic & Patterson, 2006; Jessor & Jessor, 1977; Moffitt,

1993). According to Moffitt (1993) drug use and crime in adolescence is motivated by the gap between biological maturity and the desire for social maturity, and having access to adulthood and adult roles. In this period between adolescence and adulthood drug use and crime are prevalent and the majority will engage in minor delinquency (90%) and drug use (80.5%), although it will for most be a temporary aspect of adolescence that ceases once they reach adulthood (Huang, DeJong, Towvlin & Schneider, 2009; Piquero, Brezina & Turner, 2005). For others criminality, sometimes together with drug use, is a necessary behaviour implemented to survive in certain social contexts and is an integral part of their family, social and self identity (Brunelle et al. 2005). Whether it is about creating a strong masculine street identity (Ayres & Treadwell, 2012; Collison, 1996; Hall et al. 2008; Messerschmidt, 1993) or using drugs to facilitate a criminal lifestyle (Bennett & Holloway, 2009; Brunelle et al. 2005; Menard et al. 2001), both are about seeking alternatives to more conventional norms and making choices, which for many, are often constrained by structure (lack of access to social, economic and cultural resources) and their socioeconomic position in society (Melrose, 2004; Seddon, 2006; Stevens, 2011).

For some people criminality and drug use are something they drift in and out of (Matza, 1964; Mayock, 2005), depending on the social context and 'lifestyle sector' (Giddens, 1991), while for others it is a means of achieving a certain lifestyle, characterised by status (Currie, 1993), wealth and 'consumer symbolism' (Hall, Winlow & Ancrum, 2008); so drug use and crime is a conscious choice (Rødner, 2005) that provides meaning and structure to their life (Buchanan, 2006). Therefore, drugs and crime can be a transient adolescent-limited lifestyle choice or maintained over the life course (Moffitt, 1993) as a form of adaptive 'life-planning⁵' (Giddens, 1991), which actively rejects a conformist self-identity and instead provides an illegitimate economic and cultural alternative (Collison, 1996; Currie, 1993; Pearson, 1987). Drugs and crime can also be a response to a person's social situation and can be a temporary or permanent response to financial difficulty, employment instability,

⁵ 'The strategic adoption of lifestyle options' (Giddens, 1991, p. 243).

unemployment or other forms of strain (Agnew, 1992; Hartnagel, 1997).

Consequently, drugs and sometimes criminality are implemented to varying degrees in people's lifestyles and in the formation of their identities (social and self).

Thus for the majority, drugs and crime will co-exist within certain lifestyles to varying degrees due to the similarity of functions fulfilled by both behaviours (Burr, 1987; Collison, 1996). However the relationship between the two behaviours is not static and likely will be determined and renegotiated as the individual and their social circumstances change. Also once drug use is established it tends to exacerbate criminality (Prichard & Payne, 2005), particularly for socially excluded individuals with limited life chances (Melrose, 2004; Seddon, 2006). Although drugs and crime are often a response to disadvantage once initiated drugs and crime tend to entrench many of the disadvantages further (Melrose, 2004). This is exacerbated further since people with fewer resources, both personal and environmental, also implement more avoidant coping strategies (Holahan & Moos, 1987), which brings about further problems (see the section on emotional control). Thus an individual's resources (social, emotional and financial) and their coping skills will also affect the dominance and maintenance of drugs and crime as part of the individual's identity and general lifestyle (Granfield & Cloud, 1996; Skinner & Zimmer-Gembeck, 2007; Steinberg & Morris, 2001).

Emotional Control

Drugs can be used to control emotions and alleviate or enhance certain moods (Boys et al. 2000, 2001b; Fuller, 2008). Mood enhancement or alleviation can be about happiness, relaxation or what the literature has called amnesic pleasure, which refers to using drugs as a form of self-medication to forget about life's problems and to escape from reality (Brunelle et al. 2005). When used in this way drugs can also be seen as a way of dealing with stressors and as a form of coping. Coping is a 'person's orientation and activity in response to a stressor' (Moos, 2004 p.1). There are two

main approaches to coping; a person can either actively try to resolve the problem and alter the source of stress (known as approach coping or problem-focused coping) or avoid the problem choosing to manage only the emotions and distress arising from the problem (known as avoidant coping or emotion-focused coping) (Folkman & Lazarus, 1980; Moos, 2004). Avoidant (emotion-focused) and approach (problem-focused) coping can be both cognitive (internal mental processes) and behavioural (external action) (Compas et al. 2001; Moos, 2004). Coping styles are considered to be relatively stable across different situations (dispositional tendencies towards coping), while coping strategies are seen as more dynamic and responsive to specific situations (Greenaway et al. 2015). However it has been argued that both dispositional and contextual dynamic approaches are needed to fully understand the coping process (Moos, 1993). Implementing avoidant, maladaptive, coping strategies has been associated with a range of negative outcomes including emotional distress, depression, anxiety, poor psychosocial adjustment, heavier alcohol use, self-harm and drug use (Blalock & Joiner, 2000; Fromme & Rivet, 1994; Hiebert-Murphy, 2001; Hyman et al. 2009; Kirchner, Forns & Mohíno, 2008; Runchkin, Eisemann & Hägglöf, 1999).

Coping strategies are neither good or bad but their efficacy depends on the situation (Lazarus & Folkman, 1984) and problem focused coping is associated with more positive outcomes if the stressor is controllable, whereas avoidant coping is associated with more positive outcomes if the stressor is uncontrollable (Compas, Connor-Smith, Saltzman, Thomsen & Wandsworth, 2001; Lazarus & Folkman, 1984; Wagner, Myers & McNinch, 1999). For example avoidance coping has been positively associated with the psychological well-being of prisoners and thus beneficial (Gullone, Jones & Cummins, 2000) and problem focused coping has been associated with poorer adjustment for adolescents coping with parental conflict (O'Brien et al. 1997). Stress and coping has a reciprocal relationship; coping helps to deal with and eliminate stress while stress may interfere with a person's ability to cope (Wandsworth & Compass, 2002). However drug users and offenders generally have a lower range of

coping mechanisms and the ones they do have tend to be maladaptive. When substances are used as a form of maladaptive coping they are associated with developing more problematic patterns of use (Holahan, Moos, Holahan, Cronkite & Randall, 2001; Simons et al. 1998, 2005).

Mood Enhancement

Drugs can be used to enhance and create moods for hedonistic recreational purposes (Parker et al. 1998, 2002; Measham & Moore, 2009). As noted in the section on leisure, for some people drink and drugs have become integral to the consumption of leisure and recreation, particularly what the literature refers to as calculated hedonism, where young people manage risk and pleasure while avoiding any negative outcomes (Chainey & Stephens, 2014). Determined intoxication and the importance of 'time out' illustrates drugs are used to alleviate negative affect or create positive affect (Ayres & Treadwell, 2012; Boys et al. 2000, 2001b; Chakroun et al. 2010; Measham, 2004). Drug use for these reasons is likely to be controlled and unproblematic for the majority, irrespective of the drug being used (Parker et al. 2002; Boys et al. 2000; McSweeney & Turnbull, 2007). However, there is some evidence to suggest that using drugs to enhance mood can escalate, sometimes unintentionally, into more frequent and problematic patterns of drug use (Boys et al. 2000; MacDonald & Marsh, 2002). Furthermore using drugs (such as cocaine) to alleviate negative affect has been identified as a strong predictor for developing more problematic patterns of use (Boys et al. 2000; Lewis & Hove, 2008; Lewis et al. 2008).

Self-Medication

At the more serious end of the spectrum some individuals use drugs (to varying degrees) as a form of self-medication, to block out traumatic and negative life events (Back et al. 2008; Darke, 2012; Khanzian, 1985; Melrose, 2004), to deal with stress

(Holahan et al. 2005; Wagner, Myers & McNinch 1999; Wills & Hirky, 1996) and to cope with particular lifestyles, like homelessness (Baron, 2004; National Coalition for the Homeless, 2009; Stevens et al. 2005). Drug use also provides a palliative for those who fail to achieve societal goals and who are unhappy with their life (Brunelle, Cousineau & Brochu, 2005; Currie, 1993). In these instances, it has been argued that drugs are used as a coping strategy.

The use of drugs to cope with everyday life and stress, are described in the literature as a maladaptive avoidant form of coping (Belding et al. 1996; Skeer et al. 2009; Unger, 2014) and are indicative of more problematic patterns of drug use (Hyman et al. 2009; McDonald & Marsh, 2002; Parker & Egginton, 2002). When drugs are used in this way they often induce more problems, which means the drug user starts using drugs to deal with the problems caused by their drug use (Redman, 2010), which results in a self-perpetuating cycle of addiction (Wanberg & Milkman, 1998; Wills & Heirky, 1996). Drug use is often perceived by the individual as an effective way of coping as it provides immediate effect (de Anda et al. 1991). For drug users the impact of negative life events or daily stressors is exacerbated because they perceive them as more negative and more stressful than non-drug users often due to their poor problem-solving (Back et al. 2008; Folkman et al. 1987). Avoidant coping strategies may also exacerbate stress, particularly the perception of stress arising from an event, and may actually create new stresses for the person to deal with (Holahan et al. 2005; Hyman et al. 2009). Unfortunately greater stress is also associated with a greater risk of problematic substance use (Hser, 2007; Turner & Lloyd, 2003), since greater stress means they are more likely to implement other maladaptive (avoidant) forms of coping, like using more drugs, thus exacerbating their cycle of drug use (de Anda et al. 1991; Wills & Heirky, 1996).

Although drugs can be used to cope with affect, negative life events, stress and distress, this is not always problematic or permanent. The escalation from low level use to enhance mood to more problematic self-medicating drug use and the implementation of drug use as a maladaptive coping strategy is dependent upon the

prosocial coping skills available to the individual and their willingness to implement them (Blechman et al. 1993, 1999), particularly among individuals with few resources (i.e. social, financial and emotional support). Drug users with better coping skills/strategies are more likely to avoid high-risk episodes of drug use than those with poorer and fewer coping strategies (McKay, Maisto & O'Farrell, 1999). There is evidence to suggest that recreational drug users can slip into more problematic patterns of use (Parker, 2005; Parker & Egginton, 2002) and the problematic use of drugs is related in itself to emotional distress, avoidant coping, negative affect and a perceived inability to control one's life (Forsyth, Parker & Finlay, 2003). However avoidant coping is also an independent risk factor for drug use (Eftekhari, Turner & Larimer, 2004) and drug users are more likely to implement avoidant coping strategies than non-drug users and are thus at a greater risk of developing problematic patterns of use (Wagner, Myers & McNinch, 1999).

Emotional Control and Offending

The majority of those who use drugs as a low level mood enhancer are unlikely to partake in offending unless they are already offenders (Best et al. 2008; Parker et al. 1998, 2002; Boys et al. 2000). Offenders are just as likely to use drugs for this purpose as non-offenders. Offenders are also just as likely as non-offenders to use drugs to cope with past trauma, including childhood abuse and family disruption (Needle et al. 1990) as well as to cope with their current situation. Although, there is much speculation about the nature of the drug-crime relationship, it is the more problematic patterns of drug use that are stereotypically linked to criminality, although this is only applicable to a minority of offenders (see Bennett & Holloway, 2009; Ministry of Justice 2013; UKDCP, 2008).

Like drug use, criminality is often a practical response to coping with everyday life, particularly amongst those with few prosocial alternatives; it could be an act of violence to vent frustration or a criminal act committed out of financial necessity

(Berkowitz, 1989; Burr, 1987; Collison, 1996; Pearson, 1987; Lau & Tin, 1996). The coping-criminality hypothesis (Zamble & Porporino, 1988, 1990) proposes that individuals partake in crime due to inadequate (destructive) coping abilities and an inability to deal with everyday problems; 'coping difficulties are a central cause of the maintenance and repetition of criminal acts, if not their origin' (Zamble & Porporino, 1990, p.56). Thus research has described antisocial and delinquent behaviour as a maladaptive coping strategy (Giancola, 2003), which is supported by the positive correlation between negative life events and an escalation in delinquency and the fact delinquency declines when more effective coping strategies are learnt (Aldwin, Sutton & Lachman, 1996; Hoffman & Cerbone, 1999). However, Agnew (2013) suggests three factors must converge before criminal coping is implemented, including a set of characteristics (e.g. low self-control, low social control, negative emotionality), experiencing unjust criminogenic strains of great magnitude (e.g. failure to achieve monetary goals or status) and the person must be in conducive circumstances (e.g. delinquent gangs, in situations where cost of crime is low and rewards are high). When all of these factors are present the disposition to implement criminal coping is high (see Agnew, 2013), but all three factors being present is not a consistent finding across the research and not all of factors identified lead to crime (Botchkovar, Tittle & Antonaccio, 2009; Ellwanger & Pratt, 2014; Jang & Rhodes, 2012; Stogner & Gibson, 2010). Offending, like drug use is implemented to deal with life's problems and the strains experienced by individuals in their everyday life (Agnew, 2010; Baron & Agnew, 2008; Hammersley et al. 2003).

'Crime is more likely when people lack the ability to cope in a legal manner. In particular they lack coping skills, such as problem-solving skills; they lack coping resources, such as money; and they are low in social support' (Agnew, 2010 p.136).

Therefore, both drug use and crime constitute maladaptive behaviours, implemented to cope with negative life events and daily stressors.

Offenders as a group, including young offenders, also use more avoidant coping measures than they use approach/adaptive coping measures (Ferrer et al. 2010; Gullone, Jones & Cummins, 2000; Hammersley, Marsland & Reid, 2003; Runchkin et al. 1999; Zamble & Porporino, 1990), although there is also research that suggests the opposite is true (e.g. see Mohino, Kirchner & Forns, 2004; Shulman & Cauffman, 2011). Avoidant coping among offenders is also related to offence-related psychological distress like guilt and regret (Van Harreveld, Pligt, Claassen & Van Dijk, 2007; Xuereb, Ireland & Davies, 2009). Offenders also implement ineffective problem solving (McMurrin & McGuire, 2005) and are therefore less likely to implement adaptive coping strategies, which is also true for substance users (Cooper et al. 1997; Wills et al. 2001). According to Hammersley, Marsland and Reid's (2003) research on young offenders, the lack of positive coping and number of life events predicted both substance use and offending behaviour, indicating that both behaviours are more likely to coexist in a person's life, than cause each other. Research has also shown that some anti-social individuals with substance use problems have deficits in their capacity to endure and adapt to emotional experiences, which is linked to their use of avoidant coping (Hein & Miele, 2003). As avoidant coping mechanisms like drug use tend to be implemented by offenders there is occasionally a cross over between their drug use and offending. As already mentioned some offenders will use drugs to cope with the crimes they have committed, but they will also use them to facilitate crime or as a way to cope with the consequences of crime, like imprisonment. Some offenders actually initiate drug use in prison to alleviate the distress and to cope with imprisonment (Boys et al. 2002; Brunelle, Cousieau & Brochu, 2005; Eftekhari, Turner & Larimer, 2004; Hardon & Ihsan, 2014; Wheatley, 2007).

Therefore, the majority who use drugs, both as a form of low level emotional control and high level self-medication and who also partake in criminality do so, not because the two behaviours are (causally) linked, but because the two behaviours are implemented for similar reasons and therefore coexist in a person's life. However once initiated both behaviours are invariably used to cope with the other; drug use is

used to cope with crime and the consequences of crime, while crime will often be used to cope with the financial strain caused by drug use. It is the use of crime to cope with the financial strains of drug use, particularly among socioeconomically disadvantaged and unemployed drug users, which underpins the stereotypical relationship that drug use causes crime. Although drug-driven crime among problematic drug using offenders is high at 160-260 offences a year (Bryan, Del Bono & Pudney, 2013), problematic drug users only constitute a minority of the drug using offender population (Ministry of Justice, 2013; UKDPC, 2008) and criminality is not a characteristic of every problematic drug user. Consequently, a more comprehensive explanation for the co-occurrence of both behaviours in an individual's life is they are implemented as a coping response to deal with negative life events and everyday stress; since both behaviours represent maladaptive coping styles. Offenders and drug users have distinct, but limited, coping styles (Ferrer et al. 2010; Ireland, Bousted & Ireland, 2005), which is problematic since only having a few coping strategies to rely upon is likely to indicate maladaptation signifying even more problems in coping with stress (Zimmer-Gembeck & Skinner, 2008).

Summary Functionality and Coping

For some people drug use and crime are functional aspects of their everyday lives, both in terms of being a normal and temporary feature of adolescence but also when they are adopted and maintained on a more permanent basis over the life course, particularly in certain neighbourhoods and social contexts. For example, impoverished areas are characterised by a clustering of social problems, including drugs and crime, which for some have become 'socially functional' (Hammersley, 2008 p.149) providing people not only with a means to survive in contemporary society, but also with a sense of structure, purpose and identity. Drugs and crime are part of people's leisure activities, identities and social relationships, they are also implemented to deal with situations and lifestyles people find themselves in. Thus

drug use and crime are initiated and used by some to cope with the stresses strains and negative emotions encountered in everyday life (Agnew, 1991, 2001). Although drugs and crime can be seen as a response to strains and negative life events they are also about hedonism, fun, excitement and thrill seeking. The functions fulfilled by drug use and criminality, and an individual's coping strategies will determine whether drug use is recreational or problematic and whether criminality is adolescent-limited or persists over the life course. The reasons for implementing drugs and crime and the functions they fulfil in a person's life will also determine the relationship that exists between the two behaviours (drugs and crime) and thus the drug-crime relationship.

To date there is little research examining how coping and functionality underpin or help to explain the presence of drugs and crime in some people's lives, or whether functionality and coping can offer a greater insight into why some drug users commit crime, while others do not – and thus the relationship between drug use and criminality. Therefore, the overarching aim of this thesis is to elucidate on the drug crime relationship, by comparing male drug using offenders with male drug using non-offenders to see how drug using offenders differ from drug using non-offenders, particularly since much of the research suggests both drug use and crime are similarly caused by many of the risk factors already discussed.

The notion that drugs and crime are behaviours that develop to different degrees over the life course due to a similar contextual background is nothing new and well documented in the research. Research has continually shown that drugs and crime are brought about by an early dysfunctional childhood that results in an 'anti-social syndrome' (Farrington, 1997; Farrington & Coid, 2003) and/or childhood conduct disorder (Disney, Elkins, McGue & Iacono, 1999; Kjelsberg, 2002, 2005; Wasserman, Ko & Reynolds, 2004), both behaviours are the by-product of mental disorders like ADHD and/or ASPD (Fridell, Hesse, Jæger & Kühnhorn, 2008; Moran & Hodgins, 2004; Skodal et al. 1999), peers (Fagan, 1990; Poulin et al. 2011), schooling and education (Fothergill et al. 2008; Hart & Mueller, 2013; Payne, 2009), subcultural norms (Collison, 1996; MacDonald & Marsh, 2005), lifestyle (Walters, 1994), certain

neighbourhoods, socioeconomic deprivation, poverty and unemployment (Catalano & Hawkins, 1996; Ensminger et al. 1997; Kohen et al. 2008; McVie & Norris, 2006). Therefore it is well established that drugs and crime share multiple risk factors across multiple life domains (the individual, family, peer, school and neighbourhood), but there is a dearth of research attempting to disentangle why some drug users become criminals while others do not, or examine how these common risk factors differ between groups of offending drug users and groups of non-offending drug users. What the research does show is that both behaviours have the same antecedents and thus share an 'interactive nexus', which acknowledges that although differences exist between the two behaviours and lifestyles, the antecedents underpinning drugs and crime are closely related (see Walters, 1994). However, not everyone who experiences these multiple risk factors (adverse family, negative life events, abuse, socioeconomic deprivation) goes on to become an offender and/or drug user, which suggests specific pathways or mediational mechanisms (e.g. coping strategies) influence whether these factors lead to crime and drug use in adolescence and adulthood (e.g. Bolger & Patterson, 2001 and Lazelere & Patterson, 1990).

There is a lack of research examining not only how these common risk factors differ between the different groups of drug users (offenders and non-offenders), but also how these common risk factors might help to explain some of the complexities evidenced in the drug-crime literature (e.g. why some individuals who experience many of the risk factors identified never go on to use drugs problematically or commit crime, or commit crime but manage to control their drug use). Instead most research focuses on using these common risk factors to explain criminality (e.g. Farrington & Walsh, 2007) or drug use (e.g. Hammersley & Delgarno, 2013) and although some studies include both drug use and offending (e.g. Aston, 2015; Thornberry, Ireland & Smith, 2002), few use them to disentangle the relationship between drugs and crime or examine the similarities and differences that exist between drug users who offend and those who do not. The dearth of studies that do attempt to disentangle the drug-crime relationship illustrate the importance of the social context, environment,

psychosocial and cultural mechanisms in understanding the relationship between drug use and crime, which will invariably change over a person's life course (Hammersley, Forsyth, Morrison & Davies, 1989; Parker & Newcombe, 1987; Simpson, 2003; Stevens, 2011). Research in this area also differentiates between drug using offenders who are primarily criminals that use drugs and those who are primarily drug users who commit crime (see Best, Day, et al. 2008; Nurco, 1998); a distinction that influences the relationship between drugs and crime. The offending drug users are primarily drug users who did not commit crime before they became addicted to drugs, whereas the drug using offenders, who are primarily offenders, committed crime before they became addicted to drugs (see Best, Day, et al. 2008; Nurco, 1998).

It is clear that some drug users manage to control their drug use (recreational use) and never partake in crime⁶, other drug users control their drug use but partake in crime while other drug users descend into more problematic problems of drug use and criminality, but rarely are the background factors examined among these different groups to explain why this is the case. Instead mono-causal explanations (drug use causes crime) still seem to dominate drug treatment and policy (Home Office, 2010, 2013; NTA, 2009, 2012), while Goldstein's (1985) tripartite framework advocating drug use causes crime is still being used as a conceptual framework in contemporary research (e.g. Bennett & Holloway, 2009; Dickinson, 2015; Weiner, Sussman, Sun & Dent, 2005), despite being criticised (see Stevens, 2011). Much of the existing drugs-crime literature reduces the relationship to an overly simplistic mono-causal explanation (drug use causes crime or crime causes drug use) that ignores the complexity and social context of the relationship in different groups of drug users and offenders. Therefore, this research aims to look at a number of the third factors already discussed in order to try and disentangle the drug crime relationship and capture some of the complexity that exists in an attempt to explain why some drug users go on to become offenders while others do not.

⁶ Criminality outside the realms of the crimes attached to prohibition, including possession, under the Misuse of Drugs Act 1971.

Research continually emphasises acute and chronic stressors as a risk factor for offending and drug use but do not always measure coping strategies, instead they attribute resilience to cope with these stressors to other family factors and socio-economic circumstances (e.g. McLoyd, 1998). The odd study that does examine coping (e.g. Hammersley, Marsland & Reid, 2003) has shown a lack of positive coping and number of life events predicted both substance use and offending behaviour, which illustrates the significance of coping strategies in understanding the development of both behaviours (see also Aebi et al. 2014). Consequentially in this research there will be a particular focus on coping strategies to explain why only some of the people who experience multiple risk factors (adverse family, negative life events, abuse, socioeconomic deprivation) go on to become an offender and/or a drug user.

The rationale for focusing on coping comes from research examining both offenders and drug users. Research has shown that both drug users and offenders are more likely to implement avoidant coping strategies (Ferrer et al. 2010; Wagner, Myers & McIninch, 1999). Individuals partake in drug use and sometimes crime due to inadequate coping strategies and an inability to deal with everyday problems and stressors, which mean both drugs and crime, are implemented as maladaptive coping strategies (Agnew, 2010, 2013; Zamble & Porporino, 1990). Further support for this proposition comes from research showing criminality and drug use are less likely to be implemented and both behaviours decline when more effective coping strategies are learnt (Aldwin et al. 1996; Hoffman & Cerbone, 1999). It is well documented that a dysfunctional childhood and trauma induced by negative life events, including exposure to violence, abuse and neglect, underpin drug use, particularly problematic drug use, and offending (Ardino, 2011, 2012; Hammersley & Delgarno, 2013; Maxfield & Wisom, 1996), with some even suffering from Post-Traumatic Stress Disorder (PTSD) (Cauffman, Feldman, Waterman & Steiner, 1998; Snyder & Sickmund, 1999; Steiner, Garcia & Matthews, 1997). However, one's ability to cope influences the impact negative life events and trauma has on an individual, which is supported by the research that shows those who are diagnosed with PTSD

have poorer coping skills (Ruchkin, Schwab-Stone, Kuposov, Vermeiren & Steiner, 2002). Those with more resources and adaptive prosocial coping strategies will be less likely to implement maladaptive coping strategies like drug use and crime or be diagnosed as suffering from PTSD. Once both behaviours are established there is invariably some cross over between the two behaviours and drugs will be used to cope with crime and crime will be used to cope with drug use. Thus a person's coping skills will affect the dominance and maintenance of drugs and crime as part of an individual's lifestyle (Holahan & Moos, 1987; Skinner & Zimmer-Gembeck, 2007) and help to explain why some drug users become offenders while others do not.

1.5 Aims and Objectives of the Research

The following section outlines the aims and objectives of the research, including research questions and hypothesis.

The principal aim of this research is two-fold:

- 1) To facilitate a more in depth understanding of the relationship between drug use and offending, by examining similarities and differences between drug users who offend and drug users who do not offend.

- 2) To consider whether drug use and criminality are caused by a third factor.

Research Questions:

- Do childhood risk factors predict being a drug using offender?
- Does the initiation of drug use, including age of onset and motivations underpinning this initiation, predict being a drug using offender?
- Do school and peer factors predict being a drug using offender?
- Do coping strategies predict being a drug using offender?

Research Hypotheses:

- 1) Parenting styles, high levels of impulsivity and a higher number of negative life events will predict being a drug using offender.
- 2) Age of onset for drug use will be lower among the drug using offenders than the drug using non-offenders and an earlier age of onset will predict being a drug using offender.
- 3) The reasons for initiating drug use will predict being a drug using non-offender.
- 4) Spending spare time with peers, having peers who use drugs and get in trouble with the police will predict being a drug using offender.
- 5) Receiving no qualifications from school, not enjoying school, being popular and disruptive in school, truanting and being excluded will predict being a drug using offender.
- 6) Drug using offenders will have different coping styles to the drug using non-offenders and coping style will predict group membership.

Methodology

The focus of this chapter is to outline the research methods used in this study.

2.1 Design

A quantitative approach was chosen to disentangle the drug-crime relationship and see if both drug use and criminality are caused by other (third) factors including childhood antecedents, onset and coping styles. . This research was both exploratory and descriptive since there is research examining the factors differentiating between offenders and non-offenders as well as research differentiating between drug users and non-drug users, but there is virtually no research in the UK investigating which factors explain why some drug users go on to become offenders while others do not. There is also a dearth of research focusing on coping as a means of disentangling the drug-crime link and explaining both drug use and criminality in some people's lives, while others use drugs but never commit crime (other than the crime of drug possession). Although it is common to use a qualitative approach to undertake exploratory and descriptive research, a quantitative approach was used because many of the variables identified in the literature as potential third factors underpinning drugs and crime needed to be measured to ascertain whether there is any relationship between them and the offender/non-offender groups. . Questionnaires were selected as a practicable way of obtaining a large amount of detailed information from a large and diverse group of people, namely drug using offenders and drug using non-offenders. The questionnaire comprised closed ended questions, and included questions that cross-checked previous questions to validate responses. Although the questionnaire comprised of close ended questions a number of participants expanded on their answers and provided some qualitative data, particularly among the offender group but this was omitted from the final thesis since there was no comparable

qualitative data from the non-offender questionnaires. Previously validated scales and questionnaires were also used where possible. There were two versions of the questionnaire; one for offenders and one for non-offenders. The questionnaire for the offender sample was a paper based questionnaire while a combination of paper based and online questionnaires were used to obtain data from the non-offenders.

2.2 Participants

The participants were selected using a purposive sampling method, snowball sampling, due to the exploratory and descriptive focus of the research. Although, a representative sample would have been desirable, in relation to drug using offenders and drug using non-offenders it would have been difficult to ascertain what a representative sample looked like (Coomber, 1997). Therefore, the selection of participants from the prison was premised on those who volunteered to participate in the research after seeing posters that were put up around the prison (see appendix A). Those who had already participated in the research would often endorse the research and encourage others on their wing to volunteer (snowball sampling). The offenders in prison who volunteered to participate in the research had to be drug users (recreational or problematic) and put themselves forward by filling in one of the signup sheets (see appendix B) that were left on all of the prison wings, in healthcare, in education, in the gym and on the induction unit. The signup sheets were returned via the internal mail or in person to the CARATS office or given to one of the CARATS⁷ team or the researcher. Once a signup sheet had been received and appointment would be booked in the appointments diary and an appointment slip given to the volunteer to ensure their attendance and to ensure staff unlocked them at the appropriate time. Whereas participants in the community were recruited using multi-

⁷ CARATS stands for Counselling Assessment Referral Advice and Throughcare and are the people responsible for the delivery of drug treatment in prison. CARATS is no longer used since most prisons have since renamed their drug treatment team of workers.

point snowball sampling via word of mouth, social media, websites and email⁸. Although snowball sampling is not representative it is a viable method when accessing hard to reach or hidden populations, like drug users (Robson, 2002). Those recruited in the community needed to be non-offenders in that they had no police cautions, had never been charged with a criminal offence or been found not guilty if charged, however there was no way of verifying that the participants did not have a criminal conviction beyond their self-selection and the questions in the questionnaire that cross checked responses. Non-offenders were asked about self-reported offences for which they had never been caught or received a criminal conviction for, including why they thought they had got away with it because many people offend but never come to the attention of the police (Farrington, 2001; Springer & Roberts, 2011) and coping ability might have an impact on this. Although the majority of non-offenders (n=79, 71.17%) self-reported committing crime this information was not included in the analysis because it was beyond the remit of this study, which compared drug using offenders with a criminal conviction with drug using non-offenders who had no criminal conviction. The offenders were also asked about their offending careers but the questionnaire did not differentiate between official convictions and self-reported offending. In contrast to the non-offenders the information provided by the offenders (e.g. criminal history and drug use) could be checked against official records to verify some of their accounts (offending history and drug use).

Whether participants were recruited from the community or prison they self-selected whether they were problematic or recreational drug users. Twelve (10.8%) of the non-offenders did not specify what type of drug user they classified themselves as, so they had to be assigned to a category based on their reported levels of drug use. All were categorised as recreational drug users (even the one participant that smoked cannabis daily) since none of them had ever tried or used heroin and/or crack or used drugs intravenously; the criteria commonly usually used to classify a problematic

⁸ Six offenders in the community also completed a paper and pencil questionnaire, but these were excluded from the final offender sample since they presented a different profile (e.g. longer heroin using careers, stable on substitute medication, employed and no longer offending) to the offenders recruited in prison.

drug user (see Cave et al. 2009; EMCDDA, 2007; Singleton, Murray & Tinsley, 2006). Initially there were two samples; the offenders and the non-offenders. However once the data was collected on severity of drug use (recreational and problematic) it became clear that the sample fell into four distinct groups.

Thus as well as the offender versus non-offender distinction, the following four groups premised on drug use severity as well as offender/non-offender status were also identified:

- 1) Offenders who use drugs recreationally (RDUO).
- 2) Non-Offenders who use drugs recreationally (RDUNO).
- 3) Offenders who use drugs problematically (PDUO).
- 4) Non-Offenders who use drugs problematically (PDUNO).

Although there were four groups (PDUOs, RDUOs, PDUNOs and the RDUNOs) for the purposes of this research only the two groups (offenders and non-offenders) were used and severity of drug use (recreational and problematic) was controlled for where appropriate in the analysis.

The overall sample consisted of 260 male drug users, with a mean age of 29.25 years ($SD = 8.48$) and a range from 18 to 55 years. Of the 260 participants 57.3% ($n=149$) were offenders and 42.7% ($n=111$) were non-offenders. From the overall sample well over half ($n=156$ 60%) were recreational drug users and 40% ($n=104$) were problematic drug users. The problematic drug users were significantly older ($M = 33.20$ years, $SD = 8.26$) than the recreational drug users ($M = 26.61$ years, $SD = 7.58$), $t(258) = -6.63$, $p < 0.001$. The offenders were significantly older ($M = 32.35$ years, $SD = 8.12$) than the non-offenders ($M = 25.08$ years, $SD = 7.07$), $t(258) = 7.54$, $p < 0.001$. Due to the significant differences in age between the drug using offenders and drug using non-offenders age was controlled for in all of the analysis. The non-offenders were mostly made up of recreational drug users, while there was more of an even split among the offenders (see table 2.1).

Table 2.1: Demographics of the 4 categories

		Numbers		Age		
		Count	%	Mean	SD	Age Range
Offender	Recreational Drug User	51	34.22%	29.88	7.33	18 - 49
	Problematic Drug User	98	65.77%	33.63	8.26	18 - 55
Non-Offender	Recreational Drug User	105	94.59%	25.02	7.21	18 - 51
	Problematic Drug User	6	5.41%	26.17	4.36	20 - 32

There was a significant difference between the drug using offenders and drug using non-offenders when it came to drug use severity (recreational and problematic), $\chi^2 (1) = 96.59, p < 0.001$, odds ratio = 0.03. Due to the significant difference in drug use severity between the drug using offenders and drug using non-offenders drug use was controlled for in the analysis.

In the overall sample the majority of participants were white (n=207, 79.62%) followed by those who considered themselves to be of mixed ethnicity (n=23, 8.85%), Black (n=14, 5.39%), Asian/Chinese (n=10, 3.85%) and other (n=6, 2.31%). In relation to the two groups the majority of the offenders (81%) and non-offenders (78%) considered themselves to be white (see table 2.2). There were no significant differences between the drug using offenders and drug using non-offenders in terms of ethnicity ($p = 0.18$), so ethnicity was not controlled for in any of the analysis.

Table 2.2: Ethnicity of the offenders and non-offenders

		Offender		Non-Offender	
		Count	%	Count	%
Ethnicity	White	121	81.21%	86	77.48%
	Black	9	6.04%	5	4.50%
	Mixed	14	9.40%	9	8.11%
	Other	5	3.36%	11	9.91%

The occupations were categorised using Standard Occupational Classification Codes (see ONS, 2010). Just under half of the drugs using offenders were unemployed (n=71, 48%) prior to entering prison, while the rest tended to have skilled trade occupations (34.90%), while three per cent (n=5) said their career was a professional criminal and/or drug dealer. Just over half of the non-offenders were students (55%) and the group had a much more diverse array of occupations (see table 2.3).

Table 2.3: Occupations of the offenders and non-offenders

		Offender		Non-Offender	
		Count	%	Count	%
Occupation	Student	1	0.67	61	55.45
	Unemployed	71	47.65	1	0.91
	Skilled Trades Occupations	52	34.90	12	10.91
	Managers and Senior Officials	0	0.00	2	1.82
	Professional Occupations	0	0.00	12	10.91
	Associate Professional and Technical Occupation	1	0.67	11	10.00
	Process, Plant and Machine Operatives	5	3.36	1	0.91
	Elementary Occupations	4	2.68	3	2.73
	Sales and Customer Service Occupations	3	2.01	2	1.82
	Administrative and Secretarial Occupations	0	0.00	3	2.73
	Personal Service Occupations	1	0.67	1	0.91
	Self-Employed	4	2.68	1	0.91
	Professional Criminal/Drug Dealer	5	3.36	0	0.00
	Other	2	1.34	0	0.00

For analysis purposes the above categories were collapsed into 5 categories (student, unemployed, skilled trade occupations, managers and professionals and other). There was a significant difference between the drug using offenders and drug using non-offenders when it came to occupational status, $\chi^2 (4) = 176.23, p < 0.001$. Due to the

significant difference in occupational status between the drug using offenders and drug using non-offenders, occupational status was controlled for in the analysis.

2.3 Measures

The questionnaire covered childhood and parenting experiences, the onset and use of drugs, offending history, impulsivity and coping styles, which were measured using a combination of standard psychometric measures and questions devised by the researcher. Two versions of the questionnaire were created (one for offenders and one for non-offenders), with the offender version containing additional questions relating to participants official offending. The questionnaire was mostly comprised of closed questions to improve the reliability of the data.

- **Impulsivity**

Impulsivity was assessed using the Barratt Impulsivity Scale-11 (Patton, Stanford, & Barratt, 1995), which is a 30 item scale comprised of 3 subscales that measure attentional (cognitive), motor, and non-planning impulsivity that are answered using a 4-point Likert scale, which are the second order factors. There are also 6 first order factors (attention impulsivity cognitive instability, motor impulsivity, perseverance, self-control and cognitive complexity), which are also answered using a 4-point Likert scale. Respondents can also obtain an overall core for the BIS-11 and anything between 52 and 71 is within normal limits for impulsivity, but 72 or over designates high impulsivity (see Stanford et al. 2009). The reliability and validity of the BIS-11 has been consistently shown in the research (see Patton, et al. 1995; Stanford et al. 2009) with Cronbach alpha scores ranging from 0.79 to 0.83 suggesting good internal consistency (Patton, et al. 1995). The BIS-11 scale was selected over other trait measures like Eysenck's scale because it is one of the most widely used measures of impulsivity, provided a broader assessment of impulsivity, had separate scales for

cognitive, motor and non-planning impulsivity and high test retest-reliability (Stanford et al. 2009; Webster & Jackson, 1997). The BIS-11 has also been extensively used in research on offenders and substance users (e.g. Lane, Moeller, Steinberg, Buzby & Kosten, 2007; Ruiz, Skeem, Poythress, Douglas & Lilienfeld, 2010) and has been normalised among drug users/addicts (Patton et al. 1995) thus justifying its suitability for measuring impulsivity in this study.

- **Negative Life Events**

The Early Trauma Inventory Self Report-Short Version (Bremner, Bolus, & Mayer, 2007) was used to assess negative life events during childhood. Originally adapted from the Early Trauma Inventory interview (Bremner, Vermetten & Mazure, 2000) the self-report version is a 62 item designed to assess trauma before the age of 18 years, which followed the same four domains as the original interview. Unlike the longer self-report version the short version used in this study consisted of 27 items and measured the same four domains of childhood trauma as the long version, including physical punishment (5 items), emotional abuse (5 items) and sexual abuse (6 items), in addition to more general ordeals (11 items), like the death of a parent or serious illness. The respondent answers yes or no to each item and the overall score is calculated by summing the number of items experienced by the individual before the age of 18 (the higher the score the more traumatic the childhood) and measures the same 4 domains. The short version provides comparable scores to the long version and demonstrates good internal consistency which ranged from 0.70 to 0.87 (see Bremner et al. 2007); physical punishment (Cronbach α =0.75), emotional abuse (Cronbach α =0.86); sexual abuse (Cronbach α =0.87) and general trauma (Cronbach α =0.70). There is limited research examining the use of the ETISR-SF with substance users, although it has been used among intravenous heroin users in China (see Wang et al. 2010) and cocaine users in the USA (Hyman et al. 2005). The Early Trauma Inventory Self Report-Short Version was selected because of its length (others were too long), it was one of the few measures that assessed negative life events before 18

years old including general trauma, it has been shown to have good psychometric properties for studying the consequences of childhood trauma in adulthood and good test retest-reliability (Bremner et al. 2007; Hyman et al. 2005; Jeon et al. 2009; Osorio et al. 2013).

- **Perceptions of Parenting**

Perceptions of parenting was measured using the EMBU short version (s-EMBU), which in English stands for 'my memories of upbringing' or in Swedish 'Egna Minnen Beträffande Uppfostran' (EMBU) (Arrindell, Sanavio, Aguilar, Sica, Hatzichristou, Eisemann, Recinos, Gaszner, Peter, Battagliese, Kallai, & van der Ende, 1999). The short version of the EMBU was adapted from the longer version (containing 81 items) and comprises 23 items which measure a person's perceived parental child rearing behaviour including emotional warmth, overprotection and rejection separately for each parent. Respondents score the parenting of their mother and father separately using a 4-point Likert scale (1=No, never and 4=Yes, most of the time). The overprotection subscale is measured using 10 items (scored from 10-40), emotional warmth is measured using 6 items (scored from 6-24) and the rejection subscale uses 7 items (scored from 7-28). The short version has shown good inter-reliability and validity; internal consistency coefficients were all high (≥ 0.72) irrespective of parent (Arindell et al. 1999). The EMBU was used because actual parenting could not be measured and there was no other way of assessing past parenting (e.g. asking teachers, relatives), the EMBU has been widely used with both drug users, offenders and non-offenders in the UK, but also has cross cultural applicability (Aluja, del Barrio & García, 2005; Arindell et al. 2005; Dejong et al. 1991; Matejevic, Jovanovic & Lazarevic, 2014; Palmer & Gough, 2007; Palmer & Hollin, 1999).

- **Coping Strategies**

Coping strategies were assessed using the Coping Response Inventory -Adult Form (Moos, 1993), which measures both the focus (problem or emotion-focused) and method (behavioural or cognitive) of coping in adults aged 18 and over. There are 8

different scales comprised of 6 items, which measure logical analysis, positive reappraisal, seeking support, problem solving, cognitive avoidance, acceptance or resignation, seeking alternative rewards, and emotional discharge. The first four scales (logical analysis, positive reappraisal, seeking support and problem solving) measure approach coping and the second four (cognitive avoidance, acceptance or resignation, seeking alternative rewards and emotional discharge) measure avoidance coping. The first two in each set (logical analysis, positive reappraisal, cognitive avoidance and acceptance or resignation) measure cognitive coping while the second two in each set (seeking support, problem solving, seeking alternative rewards and emotional discharge) measure behavioural coping. The CRI-AF asks respondents to describe a recent stressor, then using a 4 point Likert scale they rate their reliance on the 48 coping items. There are also 10 additional appraisal items asking how the individual reacted to the recent stressor they described; whether they saw it as a threat or a challenge; the perceived cause of the stress; and whether it had been resolved. Each of the 8 scales is scored using the answer grid provided, which is then converted into T scores (M=50; SD=10). The T scores are then used to calculate the respondent's coping profile and can be added up to give scores for each of the 4 subscales (approach, avoidant behavioural and cognitive). Each scale has good internal reliability (Cronbach's α range from 0.61 to 0.72 for men and 0.60 to 0.71 for women) and showed moderate stability over a 10 year period (see Moos, 1993). Those who obtained a T score ≤ 34 are deemed to be 'below average' and those who score ≥ 66 are described as 'above average'. The CRI-AF was selected over other coping measures because the internal reliability for the CRI-AF was much higher than for many of the other coping measures (e.g. the COPE Inventory), measured the four types of coping identified in the literature and used a real life event rather than a hypothetical situation to assess coping. Although giving respondents a hypothetical situation would help with internal validity, it would not be 'real world research' and thus the CRI-AF provided a more realistic representation of an individual's actual coping style (Zeidner & Endler, 1996). The CRI-AF was also selected because it has been used extensively with substance users, including problematic and intravenous

drug users (Avants, Warburton & Margolin, 2000, 2001; Moos, 1993) and offenders (Kircher, Forns & Mohino, 2007, 2008; Mohino, Kirchner & Forns, 2004).

2.4 Procedure

The questionnaire was administered using two methods; the traditional pencil and paper method and using an online version.

- **Paper and Pencil Questionnaires**

The administration of the questionnaires to offenders in prison was on a one-to-one basis and for the most part questionnaires were interviewer assisted by the researcher, due to the participants having no internet access. They took approximately 60 minutes to administer and were conducted in prison. However, offenders also had the option to complete the questionnaires alone in their cell either in part or in full due to the time restrictions imposed by the prison regime. They were all provided with an information sheet to help complete the questionnaire (see appendix C). In prison, the questionnaires were completed by 149 offenders in one local category B prison, over a period of 6 months. In the community the questionnaires were distributed via snowball sampling for people to complete in their own time and return. None of the community questionnaires used in this study were interviewer assisted.

- **Online Questionnaires**

An online questionnaire accessible via a Weblink was used to collect the rest of the data. The Weblink to the questionnaire was distributed to University students, posted on the University of Leicester's online notice board, distributed via websites and social networking sites like Facebook. The Weblink was also distributed via a number of contacts to their friends and family with a covering message asking people to pass the link on to their contacts.

2.5 Ethical Issues

Ethical approval was sought from the University of Leicester, School of Psychology Research Ethics Committee (PREC).

A number of ethical issues arise when conducting research, particularly when dealing with sensitive issues like drug use and criminality, or vulnerable populations like prisoners. Despite public perception prisoners constitute a vulnerable and powerless population, 'without the freedom to walk away from a situation or the normal recourse to legal help and advice' (Jupp, 2000, p.222). Although, obtaining informed consent has been described as problematic in a custodial context (see Hodgson, Parker & Seddon, 2006; Liebling, 1992), informed consent was obtained from all respondents participating in the research to ensure they understood what they were participating in, its voluntary nature, and that they could withdraw from the research at any time, including after the data had been collected, up until July 2012. For those participants in prison and those participants in the community who completed a paper copy, each person was given a copy of the consent form to keep (see appendix D), which contained their individual identification number, which they could cite if they wanted to withdraw their data from the research. Participants who completed the online version of the questionnaire did not receive a copy of the consent form. Instead they gave their consent by reading the online version of the form and agreeing to participate in the research by assigning themselves an identification number that they could cite if they wanted to withdraw their data from the research.

Participants were also informed that they could obtain information relating to the results of the research by ticking a box on the paper and pencil version of the participant consent form, or by contacting the researcher for those participating online.

2.5.1 Confidentiality and Anonymity

The confidentiality and anonymity protocol was outlined on the consent form. For the online questionnaires it was possible to guarantee both confidentiality and anonymity, as the participants assigned themselves an identification code and were not asked to disclose any personal data. However, those completing the paper version of the questionnaire were informed that although their data would be anonymised and held confidentially, the researcher and her supervisor would be aware of their name and data. To ensure the confidentiality of those completing paper versions of the questionnaire all participants were assigned an identification number on their consent form, which was stored separately to the completed questionnaires to ensure anonymity was maintained.

2.5.2 Data Protection

All personal data were dealt with in accordance with the researcher's responsibilities under the Data Protection Act. All data were held securely in locked filing cabinets or using an electronic password.

2.6 Data Analysis

The questionnaires were coded and inputted in to the Statistical Package for the Social Sciences (SPSS). A coding frame was designed; close-ended questions were pre-coded (see Gilbert, 2009).

First group differences between the drug using offenders and drug using non-offenders were examined, followed by regression analyses (linear and logistic) to examine the relationships between variables, specifically to examine whether any variables predicted group membership (drug using offender or a drug using non-offender). Age, occupation and drug use was controlled for in the analysis where appropriate. Thus all data analysis was conducted on two groups (DUOs and DUNOs).

Data Analysis

The focus of this chapter is to examine the predictors of drug-use and/or offending, particularly factors that predict whether someone is a drug using offender (DUO) or a drug using non-offender (DUNO). Group comparisons were examined using *t*-tests and MANOVAs for interval data, and chi-square tests were used for nominal data. Binary logistic regressions were used to predict group membership (drug using offender and drug using non-offender). Throughout this chapter all *p* values are reported as two-tailed value with a cut off of 0.05 and all unequal variances in the *t*-test scores will be reported with their degrees of freedom to two decimal places. All effect sizes will be reported using eta squared (η^2). All of the variables entered into the regression model were informed by the research hypotheses that came out of the literature review.

The first hypothesis focused on whether childhood factors predict being a drug using offender or a drug using non-offender. The total number of negative life events was used as a composite measure for many of the family factors (e.g. disrupted family, abuse, parental substance use) identified as predicting both drug use and crime in the literature.

3.1) Parenting styles, high levels of impulsivity and a higher number of negative life events will predict being a drug using offender.

A MANOVA showed that there was a significant multivariate effect of being a drug using offender or a drug using non-offender on the six dependent variables measuring perceived parenting, Pillai's trace $V = 0.17$, $F(6, 208) = 7.26$, $p < 0.001$, partial $\eta^2 = 0.17$. Each perceived parenting variable was subjected to a further univariate ANOVA to examine whether this trend was the same for each of the variables. The ANOVAs

showed significant differences for maternal rejection, paternal rejection, maternal emotional warmth and paternal emotional warmth between the drug using offenders and the drug using non-offenders. The mean score for maternal rejection was significantly higher in the drug using offenders group than the drug using non-offenders group, $F(1, 213) = 26.34, p < 0.001$, partial $\eta^2 = 0.11$, as was the mean score for paternal rejection, $F(1, 213) = 17.82, p < 0.001$, partial $\eta^2 = 0.08$. The mean score for maternal emotional warmth was significantly lower in the drug using offenders than the drug using non-offenders, $F(1, 213) = 27.91, p < 0.001$, partial $\eta^2 = 0.12$, as was the mean score for paternal emotional warmth, $F(1, 213) = 12.95, p < 0.001$, partial $\eta^2 = 0.06$. However, the differences between groups for maternal over protection ($F(1, 213) = 2.26, p = 0.14$, partial $\eta^2 = 0.01$) and paternal over protection ($F(1, 213) = 3.19, p = 0.08$, partial $\eta^2 = 0.02$) failed to reach statistical significance (see table 3.1).

Table 3.1: MANOVA for perceived parenting for DUOs and DUNOs

	Group	N	Mean	Std. Deviation	Signif.
Rejection Mother	Offender	142	13.01	5.23	***
	Non-Offender	110	9.89	3.14	
Rejection Father	Offender	117	14.51	6.19	***
	Non-Offender	103	11.15	4.80	
Emotional Warmth Mother	Offender	142	14.59	4.77	***
	Non-Offender	110	17.95	4.36	
Emotional Warmth Father	Offender	117	12.26	5.579	***
	Non-Offender	103	15.02	5.25	
Over Protection Mother	Offender	142	17.32	4.46	ns
	Non-Offender	110	16.50	4.60	
Over Protection Father	Offender	117	15.54	4.91	ns
	Non-Offender	103	14.24	4.39	

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- The drug using offenders had a significantly higher mean score for maternal and paternal rejection, and a significantly lower mean score for maternal and paternal emotional warmth than the drug using non-offenders.

Drug using offenders scored significantly higher overall on the BIS-11 than the drug using non-offenders, $t(257.95) = 2.35, p < 0.05$ (see table 3.2). The effect size was very small at 2%. However, both groups scored over the 72 point mean that is used to designate high impulsivity (see Stanford et al. 2009).

The drug using offenders experienced significantly more negative life events before the age of eighteen, $t(258) = 11.56, p < 0.001$, than the drug using non-offenders. The effect size was 34%. The drug using offenders had experienced just under double the drug using non-offenders mean number of negative life events (see table 3.2).

Table 3.2: T-test results for impulsivity (BIS-11) and negative life events

		N	Mean	Std. Deviation	Eta²	Signif.
TOTAL BIS-11 Score	Non-Offender	111	76.43	4.59	0.02	*
	Offender	149	78.01	6.25		
Total Negative Life Events Before The Age Of 18	Non-Offender	111	7.29	3.88	0.34	***
	Offender	149	13.64	4.73		

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- The drug using offenders had significantly higher levels of impulsivity than the drug using non-offenders.
- The drug using offenders had experienced a significantly higher number of negative life events before the age of 18 than the drug using non-offenders.

A binomial logistic regression was conducted to examine whether perceptions of parenting, impulsivity and negative life events predicted if someone was a drug using offender or a drug using non-offender, with type of drug use, age and job/employment entered as covariates. There were 214 valid cases and 11 independent predictor variables, which produced a ratio of 19.45 to 1 and thus satisfied the minimum requirement. The model was significant: $\chi^2 (14) = 225.75, p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2 (8) = 4.48, p = 0.81$, with the Cox and Snell R^2 showing that the model explained 65.20% of the variance. The overall correct classification of cases was 92.10%. Table 3.3 shows the contribution of controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. It can be seen that the total number of negative life events was the only significant predictor, with a higher number of negative life events associated with a greater likelihood of being a drug using offender.

Table 3.3: Regression analysis for perceived parenting, impulsivity and negative life events

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Type of Drug Use (Rec or Prob)	2.780	.913	9.277	1	.002	16.126	**
Age (Years)	.064	.043	2.139	1	.144	1.066	ns
Job/Employment			28.692	4	.000		***
Job/Employment (1)	6.915	1.746	15.684	1	.000	1007.069	***
Job/Employment (2)	5.242	1.420	13.637	1	.000	189.121	***
Job/Employment (3)	-.078	1.748	.002	1	.965	.925	ns
Job/Employment (4)	3.209	1.342	5.716	1	.017	24.751	*
Step 1 ^a							
RejectionMum	.203	.122	2.780	1	.095	1.225	ns
RejectionDad	-.036	.088	.172	1	.678	.964	ns
EmotionalWarmthMum	.020	.092	.047	1	.828	1.020	ns
EmotionalWarmthDad	-.020	.089	.053	1	.818	.980	ns
OverProtective Mum	.042	.093	.204	1	.651	1.043	ns
OverProtective Dad	-.037	.090	.170	1	.680	.963	ns
Total BIS-11 (Impulsivity)	-.100	.056	3.166	1	.075	.905	ns
Negative Life Events Total	.297	.110	7.292	1	.007	1.346	**
Constant	-3.230	4.880	.438	1	.508	.040	

a. $R^2 = 0.65$ (Cox & Snell), 0.87 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- Only the total number of negative life events predicted being a drug using offender once age, drug use and job/employment were controlled for.

Conclusion:

Hypothesis one was only partially accepted: only a higher number of negative life events experienced in childhood (before aged 18) predicts being a drug using offender.

3.2) Age of onset for drug use will be lower among the drug using offenders than the drug using non-offenders and an earlier age of onset will predict being a drug using offender.

The drug using offenders ($M = 13.66$, $SD = 2.96$) had a significantly lower age of onset, $t(256) = -6.81$, $p < 0.001$, for drug use⁹ than the drug using non-offenders ($M = 16.23$, $SD = 3.04$).

Table 3.4: Mean age of onset for each drug used by DUOs and DUNOs

		N	Mean	Std. Deviation	t	df	Signif.
Alcohol	Offender	146	12.77	3.66	-2.30	252	*
	Non-Offender	108	14.53	8.18			
Glue/gases	Offender	65	13.55	4.99	-0.53	76	ns
	Non-Offender	13	14.31	2.43			
Cannabis	Offender	145	13.41	2.45	-8.18	253	***
	Non-Offender	110	16.25	3.10			
Amphetamines	Offender	95	16.00	3.14	-4.93	140	***
	Non-Offender	47	18.81	3.28			
Ecstasy	Offender	110	16.84	3.08	-3.09	171	**
	Non-Offender	63	18.33	3.01			
Hallucinogens	Offender	83	16.43	2.59	-4.05	137	***
	Non-Offender	56	18.96	4.75			
Ketamine	Offender	55	22.25	6.58	1.17	87	ns
	Non-Offender	34	20.74	4.75			
Mephedrone	Offender	21	25.05	6.97	2.88	26.35	**
	Non-Offender	27	20.33	3.15			
Legal highs/NPS	Offender	18	26.89	8.23	2.03	50	*
	Non-Offender	34	22.32	7.42			
Cocaine	Offender	127	18.72	4.76	-1.01	174	ns
	Non-Offender	49	19.51	4.18			
Crack	Offender	110	21.84	6.52	0.89	117	ns
	Non-Offender	9	19.89	2.67			

⁹ By drug use this means illicit drug use and does not include alcohol.

Heroin	Offender	100	21.49	5.21	0.38	103	ns
	Non-Offender	5	20.60	3.91			
Methadone/ subutex	Offender	89	24.63	5.86	-0.01	90	ns
	Non-Offender	3	24.67	4.93			
Benzodiazepines	Offender	86	21.65	6.28	-0.29	104	ns
	Non-Offender	20	22.10	5.84			
Nitrous oxide	Offender	2	17.00	.000	.	.	.
	Non-Offender	0 ^a	.	.			
Steroids	Offender	2	21.50	6.36	.	.	.
	Non-Offender	1	18.00	.			
Ritalin	Offender	1	10.00
	Non-Offender	0 ^a	.	.			

a. *t* cannot be computed because at least one of the groups is empty.

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The majority of drug using offenders (89.93%) and drug using non-offenders (90.99%) initiated their illicit drug use with cannabis. Very few drug using non-offenders (0.90%) initiated with glue/gas/solvents and none of the drug using non-offenders used heroin, crack or benzodiazepines first.

Drug using offenders had a significantly lower age of onset than the drug using non-offenders for alcohol, cannabis, amphetamines, ecstasy and hallucinogens. In contrast the drug using non-offenders had a significantly lower age of onset than the drug using offenders for mephedrone and other legal highs (see table 3.4).

Results:

- Drug using offenders have a significantly lower age of onset for drug use than drug using non-offenders.

- The drug using offenders had a significantly lower age of onset for alcohol, cannabis, amphetamines, ecstasy and hallucinogens than the drug using non-offenders.
- The drug using non-offenders had a significantly lower age of onset for mephedrone and legal highs/NPS than the drug using offenders

A binomial logistic regression was conducted to examine whether age of onset for drug use predicted if someone was a drug using offender or a drug using non-offender, with type of drug use, age and job/employment entered as covariates. There were 257 valid cases and 4 independent predictor variables, which produced a ratio of 64.25 to 1 and thus satisfied the minimum requirement. The model was significant: $\chi^2(7) = 254.49, p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2(8) = 5.35, p = 0.72$, with the Cox and Snell R^2 showing that the model explained 62.90% of the variance. The overall correct classification of cases was 92.20%.

Table 3.5 shows the contribution of controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. It can be seen that an earlier age of onset for drug use predicted being a drug using offender.

Table 3.5: Regression analysis for age of onset and DUOs and DUNOs

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Age (Years)	.113	.042	7.367	1	.007	1.119	**
Job\Employment			37.248	4	.000		
Job\Employment(1)	7.420	1.568	22.400	1	.000	1668.756	***
Job\Employment(2)	5.142	1.247	17.007	1	.000	171.078	***
Job\Employment(3)	.739	1.586	.217	1	.641	2.095	ns
Job\Employment(4)	4.378	1.263	12.009	1	.001	79.642	**
Type Drug Use (Rec or Prob)(1)	2.391	.761	9.874	1	.002	10.924	*
Age First Used Drugs	-.228	.075	9.315	1	.002	.796	**
Constant	-4.196	1.704	6.060	1	.014	.015	

a. $R^2 = 0.63$ (Cox & Snell), 0.85 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- An earlier age of onset for drug use predicted being a drug using offender.

Conclusion:

Hypothesis two was accepted: overall age of onset for drug use was lower among the drug using offenders than the drug using non-offenders, although this was not true for the initiation of all drugs used. Also an earlier age of onset predicted being a drug using offender.

3.3) The reasons for initiating drug use will predict being a drug using non-offender.

The majority of drug using non-offenders used drugs the first time because they were curious (72.07%) or socialising with friends (61.26%), which was the same for the drug using offenders. Very few drug using offenders (7.38%) and drug using non-offenders (5.41%) initiated drug use due to peer pressure. Interestingly nearly a quarter (24.16%) of drug using offenders used drugs to forget their problems compared to only 8.11% of drug using non-offenders (see table 3.6).

Table 3.6: Reasons for initiating drug use by DUOs and DUNOs

Used drugs the first time because.....	Offender		Non-Offender		X ²	Sig.	Odds Ratio (95% CI)	Signif.
	Count	%	Count	%				
I was curious	78	52.35	80	72.07	10.38	0.001	2.35	**
I was bored	35	23.49	10	9.01	9.32	0.002	0.32	**
For the buzz and excitement	47	31.54	23	20.72	3.79	0.052	0.57	*
To look cool	33	22.15	12	10.81	5.71	0.017	0.43	*
My friends made me do it (peer pressure)	11	7.38	6	5.41	0.41	0.524	0.72	ns
I was socialising with friends	78	52.35	68	61.26	2.05	0.152	1.45	ns
It made me feel grown up	15	10.07	1	0.90	9.25	0.002	0.08	**
I was offered/given them	40	26.85	31	27.93	0.04	0.846	1.06	ns
To forget my problems/ life being shit	36	24.16	9	8.11	11.45	0.001	0.28	**

The percentages add up to more than 100% in each column as people often reported more than one reason for using drugs the first time.

* p<0.05 **p<0.01 ***p<0.001

The drug using non-offenders were significantly more likely than the drug using offenders to initiate drug use out of curiosity, while the drug using offenders were significantly more likely than the drug using non-offenders to initiate drug use out of

boredom, for the buzz and excitement, to look cool, to feel more grown up and to forget their problems.

Findings:

- Drug using offenders are significantly more likely than drug using non-offenders to start using drugs out of boredom, chasing the buzz/excitement, to look cool, to look grown up and to forget their problems.
- Drug using non-offenders are significantly more likely than drug using offenders to start using drugs out of curiosity.

A binomial logistic regression with type of drug use, age and job/employment entered as covariates was conducted to examine whether the reasons given for initiating drug use predicted if someone was a drug using offender. There were 259 valid cases and 12 independent predictor variables, which produced a ratio of 21.58 to 1 and thus satisfied the minimum requirement.

The model was significant: $\chi^2 (15) = 265.36, p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2 (8) = 2.58, p = 0.96$, with the Cox and Snell R^2 showing that the model explained 64.00% of the variance. The overall correct classification of cases was 92.70%. Table 3.7 shows the contribution of controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. It can be seen that initiating drug use out of curiosity and to socialise with friends were the only significant predictors. Both initiating drug use out of curiosity and initiating drug use to socialise with friends were associated with a greater likelihood of being a drug using non-offender. The drug using offenders were 8.20 times less likely than the drug using non-offenders to initiate drug use out of curiosity and the drug using offenders were 8.13 times less likely than the drug using non-offenders to initiate drug use because they were socialising with friends.

Table 3.7: Regression analysis for drug initiation for DUOs and DUNOs

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Type Drug Use (Rec or Prob)(1)	2.959	.878	11.342	1	.001	19.271	**
Age (Years)	.064	.042	2.343	1	.126	1.066	ns
Job\Employment			32.015	4	.000		
Job\Employment(1)	9.103	1.989	20.944	1	.000	8978.939	***
Job\Employment(2)	6.933	1.678	17.079	1	.000	1025.802	***
Job\Employment(3)	1.614	1.794	.809	1	.368	5.021	ns
Job\Employment(4)	5.721	1.677	11.645	1	.001	305.330	**
First Used Curious(1)	-2.109	.780	7.323	1	.007	.121	**
First Used Bored(1)	2.418	1.294	3.490	1	.062	11.221	ns
First Used Buzz(1)	.066	.706	.009	1	.925	1.068	ns
First Used Cool(1)	1.243	1.095	1.289	1	.256	3.466	ns
First Used Friends(1)	-.742	1.109	.448	1	.503	.476	ns
First Used Socialising(1)	-2.096	.741	7.999	1	.005	.123	**
First Used GrownUp(1)	-1.205	1.510	.638	1	.425	.300	ns
First Used Offered(1)	.457	.646	.500	1	.479	1.580	ns
First Used Forget(1)	.535	.868	.379	1	.538	1.707	ns
Constant	-5.823	1.820	10.237	1	.001	.003	

a. $R^2 = 0.64$ (Cox & Snell), 0.86 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- Initiating drug use out of curiosity predicted being a drug using non-offender.
- Initiating drug use to socialise with friends predicted being a drug using non-offender.

Conclusion:

Hypothesis three was partially accepted: only two reasons for initiating drug use predicted being a drug using non-offender and they were initiating drug use out of curiosity or to socialise with friends.

3.4) Spending spare time with peers, having peers who use drugs and get in trouble with the police will predict being a drug using offender.

All of the peer risk factors were measured on five point Likert items (strongly agree, agree, neither, disagree and strongly disagree).

Table 3.8: Peer factors for DUOs and DUNOs

		DUO		DUNO		X ²	Sig	Signif.
		Count	%	Count	%			
I felt closer to my friends than my family	Strongly agree	31	20.81	18	16.22	1.66	0.797	ns
	Agree	52	34.90	36	32.43			
	Neither agree or disagree	30	20.13	27	24.32			
	Disagree	25	16.78	22	19.82			
	Strongly disagree	11	7.38	8	7.21			
I spent all my spare time with my friends	Strongly agree	48	32.21	25	22.52	27.57	0.255	***
	Agree	75	50.34	38	34.23			
	Neither agree or disagree	10	6.71	17	15.32			
	Disagree	9	6.04	28	25.23			
	Strongly disagree	7	4.70	3	2.70			
My friends and I were always in trouble with the police	Strongly agree	29	19.46	5	4.50	105.00	0.000	***
	Agree	62	41.61	5	4.50			
	Neither agree or disagree	28	18.79	11	9.91			
	Disagree	18	12.08	29	26.13			
	Strongly disagree	12	8.05	61	54.95			
My friends and I used drugs together everyday	Strongly agree	33	22.15	10	9.01	31.68	0.000	***
	Agree	51	34.23	18	16.22			
	Neither agree or disagree	15	10.07	14	12.61			
	Disagree	29	19.46	25	22.52			
	Strongly disagree	21	14.09	44	39.64			
My friends and I used drugs together only at weekends	Strongly agree	11	7.38	8	7.21	5.33	0.255	ns
	Agree	34	22.82	25	22.52			
	Neither agree or disagree	29	19.46	18	16.22			
	Disagree	49	32.89	28	25.23			
	Strongly disagree	26	17.45	32	28.83			

* p<0.05 **p<0.01 ***p<0.001

The drug using offenders were significantly more likely than the drug using non-offenders to spend all their spare time with their friends, were always in trouble with the police and used drugs with their friends every day (see table 3.8).

Findings:

- The drug using offenders spent significantly more time with their peers than the drug using non-offenders, but did not have a significantly closer relationship with their peers than their family.
- The drug using offenders and their friends had been in trouble with the police significantly more than the drug using non-offenders.
- The drug using offenders and their friends used drugs daily with their peers significantly more than the drug using non-offenders.

A binomial logistic regression was conducted to examine whether spending time with peers, having peers who use drugs and get in trouble with the police predicted being a drug using offender, with type of drug use, age and employment/job entered as covariates. As the peer risk factors were measured on five point Likert items they were inputted into the regression as a continuous variable in line with other research in this area that shows they produce valid results when used in this way (see Lubke & Muthen, 2004). There were 259 valid cases and 8 independent predictor variables, which produced a ratio of 32.38 to 1 and thus satisfied the minimum requirement.

The model was significant: $\chi^2 (11) = 292.83, p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2 (8) = 0.76, p = 1.00$, with the Cox and Snell R^2 showing that the model explained 68.00% of the variance. The overall correct classification of cases was 95.40%. Table 3.9 shows the contribution of controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. The results indicated that

having friends always in trouble with the police predicted being a drug using offender (see table 3.9).

Table 3.9: Regression analysis for peer variables for DUOs and DUNOs

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Type of Drug Use (Rec or Prob)	3.459	1.115	9.618	1	.002	31.788	**
Age (Years)	.106	.052	4.116	1	.042	1.112	*
Job/Employment			28.245	4	.000		***
Job/Employment (1)	10.388	2.414	18.524	1	.000	32467.125	***
Job/Employment (2)	7.307	1.930	14.338	1	.000	1490.639	***
Job/Employment (3)	2.005	2.024	.982	1	.322	7.430	
Job/Employment (4)	5.908	1.820	10.543	1	.001	368.032	***
Step 1 ^a Closer to Friends than Family	.284	.378	.564	1	.453	1.328	ns
Spent SpareTime Friend	.704	.460	2.345	1	.126	2.022	ns
Friends Trouble Police	-1.767	.407	18.823	1	.000	.171	***
Friends Drugs Every Day	.170	.397	.183	1	.668	1.185	ns
Friends Drugs Weekends	-.017	.311	.003	1	.955	.983	ns
Constant	-6.347	2.474	6.580	1	.010	.002	

a. $R^2 = 0.68$ (Cox & Snell), 0.91 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- Always being in trouble with the police along with their friends predicted being a drug using offender.

Conclusion:

- **Hypothesis four was only partially accepted:** only always being in trouble with the police along with their friends predicted being a drug using offender.

3.5) Receiving no qualifications from school, not enjoying school, being popular and disruptive in school, truanting and being excluded will predict being a drug using offender.

Four of the school risk factors (enjoyed school, popular at school, disruptive in class and qualifications) were measured on five point Likert items (strongly agree, agree, neither, disagree and strongly disagree).

Table 3.10: School factors for DUOs and DUNOs

	DUO		DUNO		X ²	Sig	Signif.	
	Count	%	Count	%				
I enjoyed school	Strongly agree	12	8.05	24	21.62	33.35	0.000	***
	Agree	35	23.49	47	42.34			
	Neither agree or disagree	24	16.11	13	11.71			
	Disagree	34	22.82	19	17.12			
	Strongly disagree	44	29.53	8	7.21			
Self perception I was popular at school	Strongly agree	36	24.16	18	16.22	17.96	0.001	**
	Agree	67	44.97	38	34.23			
	Neither agree or disagree	28	18.79	29	26.13			
	Disagree	8	5.37	22	19.82			
	Strongly disagree	10	6.71	4	3.60			
I was disruptive in class	Strongly agree	53	35.57	7	6.31	63.04	0.001	**
	Agree	62	41.61	28	25.23			
	Neither agree or disagree	14	9.40	18	16.22			
	Disagree	10	6.71	32	28.83			
	Strongly disagree	10	6.71	26	23.42			
I received no qualifications from school	Strongly agree	63	42.28	1	0.90	106.84	0.000	***
	Agree	34	22.82	7	6.31			
	Neither agree or disagree	9	6.04	3	2.70			
	Disagree	16	10.74	16	14.41			
	Strongly disagree	27	18.12	84	75.68			

* p<0.05 **p<0.01 ***p<0.001

The drug using offenders were significantly more likely than the drug using non-offenders to report themselves as popular at school, disruptive in class and receiving no qualifications from school. The drug using non-offenders were significantly more likely than the drug using offenders to enjoy school (table 3.10).

Drug using offenders were four times more likely than drug using non-offenders to truant from school. There was a significant difference between the frequency of truanting for the drug using non-offenders and the drug using offenders, $\chi^2 (4) = 96.28, p < 0.001$. Drug using offenders were significantly more likely than drug using non-offenders to be expelled from school. Drug using offenders were 21 times more likely to be expelled than drug using non-offenders (see table 3.11).

Table 3.11: School variables of truanting and exclusion for DUOs and DUNOs

	DUO		DUNO		χ^2	Odds Ratio (95% CI)	Signif.	
	Count	%	Count	%				
Ever truant from school	No	16	10.74	38	34.23	21.34	4.33	***
	Yes	133	89.26	73	65.77			
Frequency truant from school	Everyday	29	19.46	2	1.80	96.28	NA	***
	A few Times a Week	69	46.31	9	8.11			
	Once or Twice a Month	32	21.48	33	29.73			
	Less Often	3	2.01	29	26.13			
	Never	16	10.74	38	34.23			
Ever expelled from school	No	45	30.20	100	90.09	92.49	21.01	***
	Yes	104	69.80	11	9.91			

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

A t-test showed that drug using offenders also had a slightly higher average on the number of times they had been expelled compared to the drug using non-offenders but this difference was not statistically significant (see table 3.12).

Table 3.12: T-test for number of times expelled from school for DUOs and DUNOs

		N	Mean	Std. Deviation	t	Signif.
How many times expelled from school	Offender	104	3.37	3.747	0.63	ns
	Non-Offender	11	2.64	2.730		

* p<0.05 **p<0.01 ***p<0.001

Findings:

- The drug using offenders were significantly more likely than the drug using non-offenders to report themselves as popular at school, disruptive in class and receiving no qualifications from school.
- The drug using non-offenders were significantly more likely than the drug using offenders to enjoy school.
- The drug using offenders were significantly more likely to truant from school than the drug using non-offenders.
- The drug using offenders were significantly more likely than the drug using non-offenders to truant from school more frequently.
- The drug using offenders were significantly more likely to be expelled than drug using non-offenders.

A binomial logistic regression, with type of drug use, age and job/employment entered as covariates, was conducted to examine whether receiving no qualifications from school, not enjoying school, being popular and disruptive in school predicted being a drug using offender. As four of the school risk factors (enjoyed school,

popular in school, disruptive in class, and no qualifications) were measured on five point Likert items they were inputted into the regression as a continuous variable in line with other research in this area that shows they produce valid results when used in this way (see Lubke & Muthen, 2004). Only ever truanted and ever expelled were entered into the regression since both were significant in the crosstabs analysis. Thus the frequency of truanting¹⁰ and the number of times a person was expelled were not included in the regression. There were 259 valid cases and 9 independent predictor variables, which produced a ratio of 28.78 to 1 and thus satisfied the minimum requirement.

Table 3.13: Regression analysis for School variables for DUOs and DUNOs

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Age (Years)	.186	.065	8.187	1	.004	1.204	**
Type of Drug Use (Rec or Prob)	3.164	1.034	9.359	1	.002	23.669	**
Job/Employment			19.269	4	.001		
Job/Employment (1)	8.088	2.267	12.728	1	.000	3253.567	***
Job/Employment (2)	3.458	1.787	3.747	1	.053	31.768	*
Job/Employment (3)	-.098	2.233	.002	1	.965	.907	ns
Job/Employment (4)	3.213	1.756	3.346	1	.067	24.853	ns
Enjoyed School	.454	.335	1.840	1	.175	1.575	ns
Popular at School	-.308	.400	.592	1	.442	.735	ns
Disruptive in Class	.147	.399	.137	1	.712	1.159	ns
Received No Qualifications	-.860	.294	8.543	1	.003	.423	**
Truant(1)	-1.193	1.060	1.267	1	.260	.303	ns
Expelled(1)	3.334	1.098	9.227	1	.002	28.060	**
Constant	-7.415	3.374	4.832	1	.028	.001	

a. $R^2 = 0.68$ (Cox & Snell), 0.91 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

¹⁰ Frequency of truanting although significant in the cross tabs was not entered into the final regression because there was too much similarity between the two variables (truancy yes and no, and frequency of truanting), which led to redundancy warnings in the output,

The model was significant: $\chi^2 (12) = 292.13, p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2 (8) = 0.45, p = 1.00$, with the Cox and Snell R^2 showing that the model explained 68.00% of the variance. The overall correct classification of cases was 95.00%. Table 3.13 shows the contribution of controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. The results indicated that receiving no qualifications from school and being expelled from school predicted being a drug using offender. Drug using offenders were 28 times more likely to have been expelled from school than drug using non-offenders.

Findings:

- Receiving no qualifications from school predicted being a drug using offender.
- Being expelled from school predicted being a drug using offender.

Conclusion:

- **Hypothesis five was only partially accepted:** only receiving no qualifications from school and being expelled from school predicted being a drug using offender.

3.6) Drug using offenders will have different coping styles to the drug using non-offenders and coping style will predict group membership.

Coping was measured using the CRI-Adult version and the T scores, rather than the raw scores, were used for the analysis (see Moos, 1993). The CRI measures four main domains of coping: approach coping, avoidance coping, behavioural coping and cognitive coping. The approach-avoidance relates to the focus of coping whereas the behavioural-cognitive relates to the methods (Moos, 1993). However, the CRI also divides these categories into four to reflect specific cognitive and behavioural coping, which falls into four sets of coping skills: cognitive approach, cognitive avoidance, behavioural approach and behavioural avoidance (see Moos, 1993). First the two domains of approach and avoidance coping will be analysed followed by the two domains of behavioural and approach coping, before going on to look at all four sets of coping skills. Each will be analysed separately since there is a cross over between the factors that comprise the two domains of approach and avoidance coping, with the other two domains of cognitive and behavioural coping. All of the different domains were analysed since research has shown just analysing one dimension oversimplifies coping and omits important information (Folkman, 1992; Wills, 1997).

A MANOVA showed that there was a significant multivariate effect of being a drug using offender or a drug using non-offender on avoidant and approach coping, Pillai's trace $V = 0.04$, $F(2, 245) = 5.49$, $p < 0.01$, partial $\eta^2 = 0.04$. Each coping variable was subjected to a univariate ANOVA to examine whether this was the same for each of the variables. The ANOVAs showed significant differences for avoidance and approach coping between the drug using offenders and the drug using non-offenders. The mean score for avoidance coping was significantly higher among the drug using offenders than the drug using non-offenders, $F(1, 246) = 8.91$, $p < 0.01$, partial $\eta^2 = 0.04$ (see table 3.14).

Table 3.14: MANOVA for avoidant and approach coping for DUOs and DUNOs

	Status	Mean	Std. Deviation	N	F	Sig.	Partial Eta ²	Signif.
Approach Scale TS	Non-Offender	179.18	33.374	99	0.59	.445	.002	ns
	Offender	175.89	33.114	149				
	Total	177.20	33.190	248				
Avoidance Scale TS	Non-Offender	213.01	60.337	99	8.91	.003	.035	**
	Offender	236.45	60.715	149				
	Total	227.09	61.527	248				

* p<0.05 **p<0.01 ***p<0.001

Findings:

- There is a significant difference between the drug using offenders and the drug using non-offenders for avoidance coping. The mean score for avoidance coping was significantly higher among the drug using offenders than the drug using non-offenders.

A MANOVA showed that there was not a significant multivariate effect of being a drug using offender or a drug using non-offender on cognitive and behavioural coping, Pillai's trace $V = 0.02$, $F(2, 245) = 2.40$, $p = 0.09$, partial $\eta^2 = 0.02$. Since the MANOVA was not significant each coping variable was not subjected to a further ANOVA and no regression analysis was conducted.

A MANOVA showed that there was a significant multivariate effect of being a drug using offender or a drug using non-offender and the four styles of coping, Pillai's trace $V = 0.06$, $F(2, 243) = 4.14$, $p < 0.01$, partial $\eta^2 = 0.06$. Each coping variable was subjected to a further ANOVA to show whether this was the same for each of the variables. The ANOVAs showed significant differences for cognitive and behavioural avoidance coping between the drug using offenders and the drug using non-offenders. The mean score for cognitive avoidance coping was significantly higher among the drug using offenders compared to the drug using non-offenders, $F(1, 246) = 4.19$, $p < 0.05$, partial $\eta^2 = 0.02$. The mean score for behavioural avoidance coping was significantly higher among the drug using offenders compared to the drug using non-offenders, $F(1, 246) = 5.48$, $p < 0.05$, partial $\eta^2 = 0.02$ (see table 3.15).

Table 3.15: MANOVA for the four main coping styles for DUOs and DUNOs

	Status	Mean	Std. Deviation	N	F	Sig.	Partial Eta ²	Signif.
Cognitive Approach Coping TS	Non-Offender	90.58	17.777	99	2.49	.116	.010	ns
	Offender	86.95	17.645	149				
	Total	88.40	17.751	248				
Behavioural Approach Coping TS	Non-Offender	88.61	18.826	99	0.02	.892	.000	ns
	Offender	88.93	18.282	149				
	Total	88.80	18.464	248				
Cognitive Avoidance Coping TS	Non-Offender	106.94	54.130	99	4.19	.042	.017	*
	Offender	116.63	16.695	149				
	Total	112.76	36.772	248				
Behavioural Avoidance Coping TS	Non-Offender	106.07	18.818	99	5.48	.020	.022	*
	Offender	119.82	56.367	149				
	Total	114.33	45.715	248				

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Findings:

- The mean score for cognitive avoidance coping and behavioural avoidance coping was significantly higher among the drug using offenders than the drug using non-offenders.

Two binomial logistic regressions were conducted to examine whether coping strategies predicted if someone was a drug using offender or a drug using non-offender.

The first binomial logistic regression examined whether approach or avoidance coping predicted if someone was a drug using offender or a drug using non-offender.

Table 3.16: Regression analysis for approach and avoidance coping

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Type of Drug Use (Rec or Prob)	2.570	.738	12.127	1	.000	13.061	***
Age (Years)	.076	.038	3.945	1	.047	1.079	*
Job/Employment			37.982	4	.000		
Job/Employment (1)	7.477	1.516	24.339	1	.000	1767.696	***
Job/Employment (2)	4.978	1.188	17.550	1	.000	145.133	***
Job/Employment (3)	.771	1.555	.246	1	.620	2.162	ns
Job/Employment (4)	4.291	1.204	12.694	1	.000	73.061	***
ApproachScaleTS	-.003	.008	.163	1	.687	.997	ns
AvoidanceScaleTS	.002	.003	.465	1	.495	1.002	ns
Constant	-6.425	2.084	9.501	1	.002	.002	

a. $R^2 = 0.60$ (Cox & Snell), 0.82 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

A binomial logistic regression, with type of drug use, age and job/employment entered as covariates, was conducted to examine whether avoidance or approach coping predicted if someone was a drug using offender or a drug using non-offender. There were 247 valid cases and 5 independent predictor variables, which produced a ratio of 49.40 to 1 and thus satisfied the minimum requirement. The model was significant: $\chi^2 (8) = 228.51, p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2 (8) = 1.35, p = 1.00$, with the Cox and Snell R^2 showing that the model explained 60.00% of the variance. The overall correct classification of cases was 91.10%. Table 3.16 shows the contribution of controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. It can be seen that neither avoidance nor approach coping predicted being a drug using offender.

Findings:

- Approach coping and avoidance coping did not predict whether someone was a drug using offender or a drug using non-offender.

The second binomial logistic regression examined whether the four styles of coping predicted if someone was a drug using offender or a drug using non-offender.

Table 3.17: Regression analysis for the four different coping styles

	B	S.E.	Wald	df	Sig.	Exp(B)	Signif.
Type of Drug Use (Rec or Prob)	2.390	.758	9.951	1	.002	10.914	**
Age (Years)	.101	.042	5.687	1	.017	1.106	*
Job/Employment			36.423	4	.000		
Job/Employment (1)	7.420	1.552	22.859	1	.000	1668.809	***
Job/Employment (2)	4.864	1.218	15.933	1	.000	129.491	***
Job/Employment (3)	.705	1.596	.195	1	.659	2.024	ns
Job/Employment (4)	3.947	1.230	10.297	1	.001	51.792	**
CognitiveApproachTS	-.020	.023	.723	1	.395	.980	ns
BehaviouralApproachTS	-.012	.022	.294	1	.588	.988	ns
Cognitive Avoidance TS	-.002	.005	.117	1	.733	.998	ns
Behavioural AvoidanceTS	.048	.018	6.859	1	.009	1.049	**
Constant	-9.328	2.584	13.034	1	.000	.000	

a. $R^2 = 0.62$ (Cox & Snell), 0.84 (Nagelkerke).

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

A binomial logistic regression, with type of drug use, age and job/employment entered as covariates, was conducted to examine whether cognitive and behavioural coping predicted if someone was a drug using offender or a drug using non-offender. There were 247 valid cases and 7 independent predictor variables, which produced a ratio of 35.29 to 1 and thus satisfied the minimum requirement. The model was significant: $\chi^2(10) = 237.03$, $p < 0.001$. The goodness of fit of this model as measured by the Hosmer and Lemeshow test was very good: $\chi^2(8) = 1.54$, $p = 0.99$, with the Cox and Snell R^2 showing that the model explained 62.00% of the variance. The overall correct classification of cases was 91.90%. Table 3.17 shows the contribution of

controlled variables and the predictor variables to the model, along with the Wald and $\text{Exp}(B)$ statistics for the variables. It can be seen that behavioural avoidance coping predicted being a drug using offender.

Findings:

- Behavioural avoidance coping predicted being a drug using offender.

Results:

Hypothesis six was partially accepted: Drug using offenders had a significantly higher mean score for avoidance coping, cognitive avoidance coping and behavioural avoidance coping than the drug using non-offenders; only behavioural avoidance coping predicted being a drug using offender.

Conclusion

Hypotheses one, three, four, five and six were partially accepted, and hypothesis one was fully accepted.

In relation to hypothesis one there were significant differences between the drug using offenders and drug using non-offenders when it came to perceived parenting, impulsivity and the number of negative life events experienced before age 18, which was used as a composite measure for childhood family factors in the analysis. The

drug using offenders reported a significantly higher level of maternal and paternal rejection, and a significantly lower level of maternal and paternal emotional warmth than the drug using non-offenders. The drug using offenders had significantly higher levels of impulsivity and had experienced a significantly higher number of negative life events before the age of 18 than the drug using non-offenders. However, once age, job/employment and severity of drug use (recreational and problematic) was controlled for only a higher number of negative life events experienced in childhood (before aged 18) predicted being a drug using offender.

Hypothesis two was accepted and there were significant differences between the drug using offenders and drug using non-offenders when it came to the onset of drug use. The overall age of onset for drug use was lower among the drug using offenders than the drug using non-offenders, although this was not true for the initiation of all drugs used. Specifically the drug using offenders had a significantly lower age of onset for alcohol, cannabis, amphetamines, ecstasy and hallucinogens than the drug using non-offenders, while the drug using non-offenders had a significantly lower age of onset for mephedrone and legal highs/NPS. A lower age of onset for drug use also predicted being a drug using offender.

For hypothesis three, which was only partially accepted, the drug using offenders initiated drug use for different reasons to the drug using non-offenders. Drug using offenders were significantly more likely than drug using non-offenders to start using drugs out of boredom, chasing the buzz/excitement, to look cool, to look grown up and to forget their problems. However, drug using non-offenders were significantly more likely than drug using offenders to start using drugs out of curiosity. Once age, job/employment and severity of drug use (recreational and problematic) was controlled for only two reasons for initiating drug use predicted being a drug using non-offender and they were initiating drug use out of curiosity and to socialise with friends.

Hypothesis four was partially supported. Drug using offenders and drug using non-offenders differed when it came to both peer factors. The drug using offenders spent

significantly more time with their peers, had been in trouble with the police with their friends and used drugs daily with their peers significantly more than the drug using non-offenders. However, once age, job/employment and severity of drug use (recreational and problematic) was controlled for only one of the peer factors (always being in trouble with the police along with their friends) predicted being a drug using offender.

There was also partial support for hypothesis five and school factors. The drug using offenders differed significantly from the drug using non-offenders on all of the school variables measured. The drug using offenders were significantly more likely than the drug using non-offenders to report themselves as popular at school, disruptive in class and receiving no qualifications from school, while the drug using non-offenders were significantly more likely than the drug using offenders to enjoy school. The drug using offenders were not only significantly more likely to truant from school than the drug using non-offenders, but were significantly more likely to truant from school more frequently and be expelled than drug using non-offenders. However, once age, job/employment and severity of drug use (recreational and problematic) was controlled for only two of the school factors (receiving no qualifications from school and being expelled from school) predicted being a drug using offender.

In relation to hypothesis six there was partial support, with significant differences between the drug using offenders and drug using non-offenders for some coping strategies. Drug using offenders had a significantly higher levels of avoidance coping, behavioural coping, cognitive avoidance coping and behavioural avoidance coping than the drug using non-offenders. However, once age, job/employment and severity of drug use (recreational and problematic) was controlled for only behavioural avoidance coping predicted being a drug using offender.

Discussion

This chapter discusses the main findings of the research, before going on to consider the implications the findings may have in relation to offenders, the drug-crime relationship, drug policy, treatment and future research. This chapter will also consider the methodological limitations of the research.

The overarching aim of this thesis was to elucidate on the drug crime relationship. It did this comparing male drug using offenders with male drug using non-offenders to obtain a deeper understanding of the relationship between drug use and criminality by examining similarities and differences between drug users who offend and drug users who do not offend. The research also tried to disentangle the drug-crime relationship to determine if drug use and crime are attributable to a third factor, specifically coping mechanisms.

4.1 Childhood Factors

This section discusses the results of the research that relate to risk factors, which include family factors, impulsivity and negative life events.

4.1.1 Risk Factors

There were significant differences between the drug using offenders and the drug using non-offenders when it came to perceived parenting, impulsivity and the number of negative life events experienced in childhood (before age 18). However, once age, job/employment and severity of drug use (recreational and problematic) was controlled for in the regression analysis only a higher number of negative life events experienced in childhood (before aged 18) predicted being a drug using offender.

These findings are in accordance with other research on negative life events that show

individuals who experience more negative life events in childhood are more likely to use drugs and become life-course persistent offenders (Mazerolle & Maahs, 2002; Ring & Andersson, 2010). In this research the Early Trauma Inventory Self Report-Short Version (Bremner, Bolus & Mayer, 2007) used to measure negative life events was used as a composite measure of family factors in the analysis since it included many of the family factors (e.g. disrupted family, sexual and physical abuse, parental substance use) identified as predicting both drug use and crime in the literature. The findings support previous research in this area, which shows family factors are a strong predictor of both offending and drug use, and the more family risk factors a person is exposed to in childhood the more likely they are to become an offender and a drug user (see Farrington et al. 2006, 2009a; Kaplow et al. 2002; Montgomery et al. 2008; Thornberry et al. 2006; White et al. 1999). Thus this research shows that childhood risk factors, specifically the number of negative life events experienced, predict being a drug using offender, which satisfies the first research question. However, since only the number of negative life events predicts being a drug using offender hypothesis one (parenting styles, high levels of impulsivity and a higher number of negative life events will predict being a drug using offender) was only partially satisfied.

Parenting Styles

Parenting styles have been shown to predict both drug use and offending (Baumrind, 1991) and although it did not predict group membership in this research, the group comparison analysis showed that drug using offenders differed significantly from the drug using non-offenders when it came to perceived parenting styles. The drug using offenders perceived their mother and father to be more rejecting and had lower levels of maternal and paternal emotional warmth than the drug using offenders. These findings support other research in this area, which shows that both offenders (regardless of drug use) and drug users are more likely than non-offenders and non-

drug users to have rejecting parents with low emotional warmth (Barnow, Lucht & Freyberger, 2005; Hoeve et al. 2008; Kazemian, Widom & Farrington, 2011).

Research has shown that children form low attachments to cold rejecting parents and poor attachments produces 'cold, callous children who tend to commit delinquent acts' (Farrington, 2011b, p.216). According to research, the development of poor attachments can impact on drug use and offending both directly and indirectly. Insecure attachments in childhood, particularly to mothers, predict antisocial behaviour, crime and substance abuse (Borhani, 2013; Hoeve et al. 2012; Smallbone & Dadds, 2000). Poor attachments with parents inhibit the internalisation of societal norms and values, but also their parents' norms and values, which affects a child's ability to demonstrate socially competent/conventional responses to difficult events, and leads to fragile bonds with other people, including authority figures (e.g. teachers and police), thus making these individuals more prone to antisocial behaviour like delinquency and drug use (Bowlby, 1973; Cassidy, Kirsh, Scolton & Parke, 1996; Egeland, 2009; Hirschi, 1969; Sampson & Laub, 1993). Insecure attachments in childhood also affects social competence, leads to poor regulation of emotions and ineffective coping strategies, which have all been linked to drug abuse and delinquency (Contreras, Kerns, Weimer, Gentzeler & Tomich, 2000; Ferreira et al. 2012; Nikmanesh, Kazemi & Khosravi, 2015; Nyamathi et al. 2010; Sørliie, Hagen & Ogden, 2008; Zamble & Porporino, 1990). Low levels of parental emotional warmth have also been identified as a parental disciplinary technique called 'love-withdrawal' (see Shaw & Scott, 1991), which has been linked to offending (Palmer & Hollin, 2000). It was unsurprising that the drug using non-offenders had higher levels of both paternal and maternal emotional warmth since previous research shows emotional warmth to be a protective factor against offending, drug use and can negate the effects of physical punishment in childhood (McCord, 1997; Rai, 2008). However, in this research they were all drug users so it did not act as a protective factor against drug use in this research, but the majority of the non-offenders were recreational drug users so it may have had helped to prevent them from developing more problematic

patterns of use; something that would require further analysis beyond the scope of this thesis. The levels of paternal and maternal emotional warmth were significantly lower among the drug using offenders when compared to the drug using non-offenders, illustrating that the levels of emotional warmth perceived by the drug using offenders were not high enough to negate the effect of the perceived parental neglect experienced by the offenders (McCord, 1997) or act as a protective factor against offending (Farrington & Walsh, 2007). Interestingly the impact of a father's perceived parenting was not more influential than the perceptions of a mother's parenting, which is surprising since there is evidence that same sex parent-child relationships (e.g. between father and son) are much stronger and more influential on behaviour than those between different sex parent-child relationships (e.g. between mother and son) (e.g. Hoeve et al. 2009). However it is clear that a higher level of emotional warmth and having more rejecting parents differentiated between the drug users that went on to become offenders and the drug users that did not. Thus the results of this research suggest that perceived parenting styles differentiate between drug users that go on to become offenders and those that do not.

The above results must also be interpreted in accordance with the methodological limitations associated with using retrospective perceptions of parenting. Previous research suggests that perceptions of parenting can be affected by memory, individual traits such as aggression and gender, and shows antisocial adolescents, particularly males, tend to have more negative perceptions of parenting than non-antisocial individuals (Aluja, del Barrio & García, 2005; Östgård-Ybrandt & Armelius, 2003; Palmer & Hollin, 1999). Thus it is possible that the drug using offenders' perceptions may be more negative than the drug using non-offenders perceptions, which may have contributed to some of the differences discussed above. However these differences may also be attributable to the fact that the drug using offenders' perceptions of parenting were accurate and the parenting they were subjected to was more negative as illustrated in much of the literature (Chipman et al. 2000; Stanrock, 2012; Steinberg, 2000), particularly the literature using other measures of parenting

(e.g. observations, parental and child reports) (see Hoeve et al. 2009; Skinner et al. 2011). There is also an argument for using perceptions of parenting, since research suggests it is a child's perception of their parents that impacts on their 'internal schemes and scripts', which then influences their behaviour (Palmer & Hollin, 2001). Research also suggests that parenting is bidirectional and naughty, delinquent children influence the type of parenting they receive and the amount of involvement a parent has with their child (see Farrington & Walsh, 2007; Patterson 1982). Despite these limitations, the research illustrates that parenting styles, specifically low levels of emotional warmth and high levels of rejection, differentiate between drug users that are offenders and those that are not offenders.

4.1.2 Impulsivity

Impulsive individuals are already at an increased risk of drug use and delinquency (Dom, De Wilde, Hulstijn, van den Brink & Sabbe, 2006; Farrington & Welsh, 2007; Thompson et al. 2006), which is supported by the findings in the current research. In accordance with the previous literature, impulsivity differentiated between the drug using offenders and the drug using non-offenders; the drug using offenders had significantly higher levels of impulsivity than the drug using non-offenders (Arantes et al. 2013; Higgins et al. 2013; Lane et al. 2007; Moreno et al. 2012; Thompson, et al. 2006; White et al. 1994). Impulsivity explains offending behaviour and drug use because offenders and drug users act without considering the impact or consequences of their behaviour beforehand, and prefer the small immediate rewards over large delayed rewards (called temporal discounting) (Ainslie, 1975; Newman, 1987). Higher levels of impulsivity lead to offending because on a cognitive level the offenders cannot foresee the consequences of their behaviour either for themselves, their families or their victims, while on behavioural level offenders are unable to control their behaviour or delay gratification in terms of obtaining the immediate reward, even if the threat of punishment is present (Newman et al. 1992; White et al. 1994). Impulsivity control problems have been shown to lead to stable offending over

the life course and high levels of impulsivity are a characteristic of life-course persistent offenders (see Higgins et al. 2013; Moffitt, 1993, 2003). Both groups in this research scored over the 72 point mean that is used to designate high impulsivity (Stanford et al. 2009) although given that both groups were drug users and previous research suggests drug users have much higher levels of impulsivity than non-drug users and general population samples (Moreno et al. 2012; Vonmoos et al. 2013), this perhaps was unsurprising. However, once age, job/employment and drug use severity (recreational or problematic) were controlled for in the regression analysis impulsivity did not predict whether someone was a drug using offender or a drug using non-offender, suggesting these differences were down to other factors.

Impulsivity may also have an indirect effect on offending and drug use, and the relationship between them is further complicated by other variables that may also contribute to the link. Impulsivity can have an indirect effect on prospective drug use and offending since an inability to inhibit behaviour can cause disruption at school and lead to school failure or exclusion, which have both been linked to drug use and offending (MCrystal et al. 2006; Smith, 2006). Impulsivity has also been shown to impact on coping strategies and impulsive individuals are more likely to implement emotion focused and avoidant coping strategies (Nagata et al. 2000), which have also been linked to drug use and offending (Ferrer et al. 2010; Wagner, Myers & McNinch, 1999). Impulsivity also predicts severity of drug use and differentiates between recreational and problematic drug use (Lane et al. 2007); higher levels of impulsivity are linked to more problematic patterns of use and problematic drug use is linked to higher levels of offending, which may explain why problematic drug users are also more likely to be the most prolific offenders (Hammersley, 2011; Home Office, 2007). All of these indirect effects require further investigation but are unfortunately beyond the remit of this thesis. Thus the relationship between impulsivity, drug use and offending is complicated, particularly since there are a number of methodological limitations that must be considered when interpreting the above results.

There is a lack of clarity in the research pertaining to a definition of impulsivity (Whiteside & Lynam, 2001), which is often used interchangeably with a lack of self-control and inability to delay gratification, making the interpretation of results across the research problematic. Impulsivity has also been linked to neurophysiological underarousal (Eysenck & Gudjonsson, 1989), brain damage (Stuss & Benson, 1984), psychiatric disorders (Moeller, Barratt, Dougherty, Schmitz & Swann, 2001), PTSD (Kotler, Iancu, Efroni & Amir, 2001) and cognitive impulsivity has been found to be related to IQ (White et al. 1994), none of which were measured in this research and might actually be influencing the results. Also research has failed to support the factor model of the BIS-11 with offenders (see Ruiz, Skeem, Poythress, Douglas & Lilienfeld, 2010) and the overall structure of the concept of impulsivity is heavily contested (Whiteside & Lynam, 2001). There is some contention in the literature whether impulsivity remains relatively stable (see Caspi, 1998), while others argue impulsivity is unstable (see Cote et al. 2002), although some of these differences might be attributable to the different impulsivity measures. Also it is difficult to disentangle the relationship between drug use and impulsivity since research suggests drug users are more impulsive than non-drug users (Moreno et al. 2012), but it is difficult to determine if the drugs make the individual more impulsive or their high levels of impulsivity pre-existed before drug use was initiated (Moreno et al. 2012; Dalley, Everitt & Robbins, 2011; Wit, 2008). Impulsivity is also a defining feature of ADHD, personality disorder and PTSD which have all been linked to substance use, particularly problematic drug use, and offending (Gudjonsson et al. 2009; Putkonen, Kotilainen, Joyal & Tiihonen, 2004; Sindicich et al. 2014). Research shows there is a high co-morbidity rate between these disorders, particularly in offender populations (Holden et al. 2013; Groenman et al. 2013; Panko, 2005; Putkonen et al. 2004; Soderstrom, 2004). However, none of these disorders were included in this research but may explain the impulsivity differences found between the drug using offenders and the drug using non-offenders in this study.

Overall, impulsivity differentiated offenders who were drug users from drug users who were not offenders, but impulsivity did not predict group membership once age, job/employment and severity of drug use (recreational and problematic) was controlled for. These findings suggest these differences were down to other factors.

4.1.3 Negative Life Events

The number of negative life events experienced before the age of 18 significantly differed between the drug using offenders and the drug using non-offenders. The drug using offenders experienced significantly more negative life events, nearly double, than the drug using non-offenders, and a high number of negative life events predicted being a drug using offender once age, job/employment and severity of drug use (recreational and problematic) was controlled for. This finding suggests that regardless of severity of drug use, the number of negative life events experienced substantially increases a person's risk of being involved in juvenile delinquency and adult criminality supporting other research in this area (Baker et al., 2010; Engdahl, 2015; Ring & Andersson, 2010). Negative life events often induce strain and stress, which can have both an indirect and a direct effect on drug use and crime, just like prosocial life events, like marriage and employment, can initiate desistance from both drug use and criminality (Blokland & Nieuwbeerta, 2005; Parker et al. 1998; Stouthamer-Loeber et al. 2004). According to Agnew's (1992, 2001) general strain theory negative life events induce strain and negative emotions, like frustration and anger, and both drug use and crime are implemented to reduce this strain and relieve these negative emotions. Thus they are used as coping strategies to reduce the impact of the negative life event. Negative life events and the subsequent strain and stress can also have a negative affect on health/wellbeing (physical and psychological), emotions, behaviour and satisfaction with life (Blazer, Hughes & George, 1987; Jackson & Finney, 2002; Krause, 2004; Ogle, Rubin, Bernsten & Siegler, 2013), which in turn can also influence delinquency and drug use (Agnew, 1992; Brezina, 1996;

Mazerolle et al. 2000). Negative life events tend to interact and accumulate over the life course and have a negative impact on development, the cumulative impact has been shown to sustain criminality from childhood to adulthood and lead to an escalation in delinquency (Hagan & Foster, 2003; Hoffman & Cerbone, 1999), which may explain the offending of the drug using offenders.

However, the impact of negative life events on drug use and delinquency is also mediated by a number of other factors, including the stressfulness of the event (Rutledge & Sher, 2001), coping strategies (Banez & Compas, 1990; Min et al. 2007), interpretation of the event (Maruna, 2004), self-control (Wills et al. 2011), controllability of the event (Smith & Kirby, 2011), negative emotionality (McGue et al. 1999) and impulsivity (Hayaki et al. 2005). Also certain groups (e.g. low socioeconomic status, disadvantaged neighbourhoods) are more likely to experience more negative life events at an earlier age than other groups (Hatch & Dohrenwend, 2007; Miller, Chen & Cole, 2009), which may skew the results. Responses for dealing with the stress induced by negative life events also depends on the individual, their resources and social support, particularly their coping strategies (Garnefski & Spinhoven, 2001) and it is these factors that often influence whether negative life events lead to drug use and crime. However it is difficult to disentangle the cumulative effect of childhood risk factors and negative life events experienced by each individual in a cross sectional study like this one, which makes it difficult to ascertain what impact negative life events actually had on future behaviour and adult emotional outcomes. This is complicated further since research suggests the impact negative life events has on a person depends on a number of external factors (family environment, support), as well as the individual's interpretation of the event (e.g. whether the individual finds the event stressful) (Howze & Kotch, 1984), which are difficult to gauge. Another problem associated with the findings in this research is the retrospective recall of negative life events which was used in this study that some research has shown to be controversial since memories fade or may not be recalled as a result of infantile amnesia, and negative mood (e.g. depressed) at the time of recall

has also been shown to influence the recall of negative life events (Hardt & Rutter, 2004; Lewis, 1995; McFarland & Buehler, 1998). These biases in retrospective recall may explain why drug using offenders who were in prison at the time of interview, and thus probably not in a very positive mood, recalled more negative life events than the drug using non-offenders. Research also shows that drugs are often used to cope with the negative emotions and trauma induced by negative life events (Drapela, 2006) and trauma has been linked to drug use, violence and criminality (Ardino, 2011, 2012; Hammersley & Dalgarno, 2013; Khoury, Tang, Bradley, Cubells & Ressler, 2010; Maxfield & Widom, 1996; Winlow, 2014), which although worthy of further investigation, is beyond the remit of this thesis. Also according to Agnew's (1992) general strain theory anger is a key emotion between the stress/strain and subsequent delinquency, but this study did not measure anger and other research suggests that anger may also be an externalising behaviour implemented in response to negative life events (Hoffman & Su, 1997; Ledbeater et al. 1995), since anger is also a maladaptive coping strategy and anger also has a strong association with drug use (Eftekhari, Turner & Larimer, 2004). Therefore, although the results from this study may be affected by some of the issues discussed, it does show that the number of negative life events experienced before the age of 18 predicts whether a drug user goes on to become an offender or not.

4.1.4 Summary

The more negative life events experienced during childhood predicted whether a drug user went on to become an offender. Individuals who experience more negative life events in childhood are more likely to use drugs and become life-course persistent offenders (Mazerolle & Maahs, 2002), which is in accordance with the findings of this research. This also replicates research that shows the more risk factors a person is exposed to during childhood the more likely they are to become an offender and a drug user (Farrington et al. 2009b; Kaplow et al. 2002) since many of the negative life events measured by the Early Trauma Inventory (e.g. separation, parental drug use,

abuse) have also been identified as childhood risk factors for both offending and drug use, including recreational and problematic drug use (Farrington & Welsh, 2007; Frisher et al. 2007). Thus this research shows that childhood risk factors measured via the number of negative events experienced in childhood predicts being a drug using offender, and differentiates between drug users who go onto become offenders and those who do not.

4.2 Onset

This section discusses the results of the research that relate to the onset of drug use, which examines issues relating to the initiation of drug use, including age of onset and motivations underpinning this initiation. The following section will answer the second research question (does the initiation of drug use, including age of onset and motivations underpinning this initiation, predict being a drug using offender?) and hypothesis two (age of onset for drug use will be lower among the drug using offenders than the drug using non-offenders and an earlier age of onset will predict being a drug using offender) and hypothesis three (the reasons for initiating drug use will predict being a drug using non-offender).

4.2.1 Age of Onset

The onset of drug use differentiated between the drug using offenders and the drug using non-offenders, with the drug using offenders having a significantly lower age of onset for drug use¹¹ than the drug using non-offenders, which may have been skewed by the higher prevalence of problematic drug users in the offender sample who are known to have a much lower age of onset than recreational drug users (Brettville-Jensen et al. 2005; Hser et al. 2007). In this research the mean age of onset for the

¹¹ Drug use here means illicit drug use and does not include alcohol.

offenders was below 15 years and initiating drug use before the age of 15 increases the risk of problematic drug use and addiction in adulthood (Dishion et al. 1999; Odgers, et al. 2008). Age 15 is also important since research suggests it is at this age that more efficacious and adaptive coping styles are implemented by adolescents, which may help to explain why this age is so significant (Ebata & Moos, 1994; Hauser & Bowlds, 1990; Seiffge-Krenke, 1995; Seiffge-Krenke et al., 2000, 2001; Williams & McGillicuddy-De Lisi, 2000). When considering the onset of using specific types of drug the drug using offenders had a significantly lower age of onset for alcohol, cannabis, amphetamines, ecstasy and hallucinogens than the drug using non-offenders, suggesting that the drug using offenders not only started using drugs at an earlier age but they progressed up the drug use hierarchy quicker than the non-offenders since each drug was initiated at a younger age (Johnson, 2001). Regardless of group the majority of the sample progressed through the drug using hierarchy. The drug using offenders typically started with alcohol followed by cannabis and volatile substances (which includes glue, gas, aerosols and solvents), supporting other research in this area (Brettville-Jensen et al. 2005; McIntosh et al. 2005; Tarter et al. 2006). Although for the most part the drug using non-offenders also progressed up the traditional drug using hierarchy identified in the literature, the drug using non-offenders used volatile substances at an earlier age than alcohol, which contradicts other research in this area (Aldridge et al. 2011; Hser et al. 2007; McKeane, McIntosh et al. 2004). However these findings may have been skewed due to the low number of drug using non-offenders (12%, n=13) who had actually used volatile substances in the group. Interestingly the drug using non-offenders had a significantly lower age of onset than the drug using offenders for mephedrone and legal highs, which might reflect the younger age of the drug using non-offender group, who seemed more aware of these new drugs than the older drug using offender group. Statistics show that the use of legal highs tends to be higher among young people (Stephenson & Richardson, 2014), which may help to explain this phenomenon. Since this research was undertaken the use of legal highs in prison has become a burgeoning problem, particularly among young people and in men's prisons where synthetic cannabinoids

seem to have become the drug of choice (HMCIP, 2015). This is a new phenomenon that requires further investigation, but was also beyond the scope of this thesis.

Once age, job/employment and drug use severity (recreational or problematic) were controlled for in the regression analysis only an earlier age of onset for drug use predicted being a drug using offender confirming previous research that the mean age of onset for drug use amongst offender samples is much lower than for general population samples (Hser et al. 2007; Makkai & Payne, 2003; Ministry of Justice, 2013). Similarly in accordance with most research in this area both groups initiated drug use in early (13-16 years) adolescence (Sloboda & Bukoski, 2003) and the drug using offenders initiated illicit drug use two and a half years before the drug using non-offenders, which may not only explain why the majority of the offenders were problematic drug users (65.77%, n=98), but also why they were offenders and in prison. Research has shown that an early age of exposure to alcohol and drugs and an earlier age of onset, particularly before age 15, increases the risk of other poor adult outcomes including crime, arrest, conviction and imprisonment (Odgers et al. 2008; Slade et al. 2008), which could be attributable to adolescents having fewer efficacious and adaptive coping strategies before this age (Ebata & Moos, 1994; Hauser & Bowlds, 1990; Seiffge-Krenke, 1995; Seiffge-Krenke et al., 2000, 2001; Williams & McGillicuddy-De Lisi, 2000) making them more inclined to implement avoidant maladaptive strategies like drugs and crime. Thus an early age of onset differentiates between drug users that go onto become offenders and those that do not, showing hypothesis two was accepted (age of onset for drug use will be lower among the drug using offenders than the drug using non-offenders and an earlier age of onset will predict being a drug using offender).

4.2.2 Reasons for Onset

The reasons for drug initiation also differed between the drug using offenders and the drug using non-offenders. The drug using offenders were significantly more likely to

initiate drug use for more hedonistic reasons (out of boredom, chasing the buzz/excitement) than the drug using non-offenders, but they were also significantly more likely to use them to look cool, to look grown up and to forget their problems. Initiating drug use to look cool and to look grown up is in accordance with Moffitt's (1993) research that emphasises the gap between biological and social maturity and having access to adult roles, while initiating drug use to forget their problems illustrates their early use of substances as an avoidant form of coping. This supports previous research in this area showing that the use of drugs to forget about life's problems, to escape from reality (amnesic pleasure), and to alleviate negative affect are strong predictors for developing more problematic patterns of use (Boys, et al., 2000; Brunelle et al. 2005; Lewis & Hove, 2008). This may also help to explain why the majority of drug using offenders were problematic drug users. Since Moffitt's (1993, 2003) taxonomy proposes antisocial behaviour is motivated by the gap between biological and social maturity in adolescence when delinquency increases ten fold this may explain the presence of drug use and crime in the drug using offenders lives. In contrast to the drug using offenders, the drug using non-offenders were significantly more likely to start using drugs out of curiosity, which is one of the most common reasons for drug initiation regardless of age, the group being studied or drug being used (Fuller, 2011; McIntosh et al. 2006).

Once age, job/employment and drug use severity (recreational or problematic) were controlled for in the regression analysis only initiating drug use out of curiosity and to socialise with friends predicted being a drug using non-offender. These findings are in accordance with other research in this area that has shown using drugs out of curiosity is one of the most common reasons for drug initiation (Fuller, 2011; McIntosh et al. 2006). Using drugs to socialise with peers also replicates other research in this area that shows adolescents are more likely to hang around with those who have similar interests and who partake in activities consistent with the group, and that friendships and hanging out with friends often revolves around deviant activities in order to fit in with likeminded friends (Dishion, Nelson, Winter &

Bullock, 2004; Friday, 2005; Knecht et al. 2010; Light & Dishion, 2007; Schaefer, 2010). The mutual influence in friendship groups is often called peer contagion or deviance training and results in group homogeneity where adolescents adopt the beliefs, behaviours and values of their peer group, which may include deviance and drug use (Aker, 2009; Dishion & Tipsford, 2011; Snyder et al. 2010). Group conformity and acceptance is one of the key reasons provided for initiating both drug use and criminality (McIntosh et al. 2006). Thus drug use, and for some crime, is an important part of socialising with peers, building friendships and conforming to group norms (McSweeney et al. 2007).

Using drugs to socialise with friends is also a common feature of adolescence and according to Moffitt's (1993, 2003) dual taxonomy the gap between biological and social maturity is when adolescents see some of their peers engaging in more exciting, often adult pursuits like drinking, criminality and drug use, and start to emulate them, which is why delinquency increases ten-fold in adolescence. The adolescent-limited offenders mimic antisocial behaviour from those around them, including friends, while the life-course persistent offenders tend to select deviant peers who are like them, before the adolescent-limited offenders go on to mature out of delinquency and the life-course persistent offenders continue into adulthood. Although the non-offending group in this research do not neatly match the adolescent limited offenders in Moffitt's (1993, 2003) research, because they continue to use drugs into adulthood, the majority of this group had committed crime (71.17%, n=79), they had just never been caught or received a criminal conviction for their offences, suggesting they were deviant but matured out of crime and delinquency, but not drug use. However, this extension of drugs into adulthood and the maintenance over the life-course is in accordance with other research in this area, showing that some otherwise law abiding citizens continue to use drugs into adulthood to fulfil a number of functions and roles (Hammersley, 2011; Pearson, 2001; Shewan & Delgarno, 2005; Warburton et al. 2005) and the age when people would naturally mature out of drug use has been pushed back in contemporary society (Aldridge et al. 2011; Parker et al. 1998). It also

supports Moffitt's (1993) view that early antisocial behaviour leads to drug use. For the drug using offenders in this research, both drug use and crime persisted into adulthood and became an integral and permanent feature of their lives, which put them on par with Moffitt's (1993, 2003) life-course persistent offenders, although, not all life-course persistent offenders will use drugs or progress from recreational drug use in adolescence to more problematic patterns of drug use in adulthood. The results show that hypothesis three was only partially accepted as only initiating drug use out of curiosity or to socialise with friends predicted being a drug using non-offender.

4.2.3 Summary

The above findings illustrate that there are significant differences when it comes to drug initiation, age of onset and reasons underpinning initiation, between the drug users that are also offenders and the drug users that are not offenders. Once age, job/employment and drug use severity (recreational or problematic) were controlled for only an earlier age of onset for drug use predicted being a drug using offender, while initiating drug use out of curiosity and to socialise with friends predicted being a drug using non-offender. The earlier age of onset identified in this research distinguished between drug using offenders and non-offenders in accordance with much of the existing research in this area. These findings show that early initiation of drug use increases the risk of becoming an offender. However the above results must also be interpreted in accordance with the methodological limitations associated with using retrospective memories of why drug use was initiated and accurate recall of events during childhood, including when intoxicated on drink and drugs. Although there is limited evidence relating to the bias in retrospectively recalling age of onset for drug use, the research that exists is mixed, with some research suggesting people tend to increase their reported age of first use as they get older (see Golub, Johnson & Labouvie, 2000) while other research suggests most people are consistent and accurate in their retrospective recall of drug initiation (see Ensminger, Juon & Green,

2007). Questions that cross checked the answers for the initiation of illicit drugs and alcohol were included to try and increase the validity of the data relating to this aspect of the research. Therefore the age of onset and the reasons given for initiation seem to be an early indicator that differentiates between those drug users who go onto become offenders and those who do not, which has implications for both drug policy and early intervention programmes. Overall this research shows that the initiation of drug use, including age of onset and motivations underpinning this initiation, predict being a drug using offender.

4.3 Peer and School Factors

This section discusses the results of the research that relate to peer and school factors to answer the third research question (do school and peer factors predict being a drug using offender?), hypothesis four (spending spare time with peers, having peers who use drugs and get in trouble with the police will predict being a drug using offender) and hypothesis five (receiving no qualifications from school, not enjoying school, being popular and disruptive in school, truanting and being excluded will predict being a drug using offender).

4.3.1 Peer Factors

Peer factors differentiated between the drug using offenders and the drug using non-offenders. The drug using offenders spent significantly more time with their peers, had been in trouble with the police with their friends and used drugs daily with their peers significantly more than the drug using non-offenders, which is in accordance with other literature in this area. Research shows the more time spent socialising with peers, particularly when partaking in unstructured socialising, the more likely peers are to affect attitudes and behaviours, and antisocial peers are a risk factor for

criminality and drug use (Fallu et al. 2010; Fergusson & Meehan, 2011; McGloin & Shermer, 2009; Osgood & Anderson 2004; Seaman & Ikegwuonu, 2010). Thus the differences between the drug using offenders and drug using non-offenders found in this research are unsurprising since using drugs and getting in trouble with the police is demonstrative of a delinquent peer group and shows young people are likely to associate with likeminded peers, from similar backgrounds and partake in activities consistent with the group, including drug use and crime (Akers, 2009; Dishion & Tipsord, 2011; Friday et al. 2005; Knetcht et al. 2010; Nurco et al. 1994; Prinstein & Dodge, 2008; Snyder et al. 2010). Delinquent peer groups not only provide a conducive learning environment for both behaviours, but inform young people's decisions about drugs and crime reinforcing delinquency and drug use as acceptable, even socially rewarding, behaviours (Akers, 2009; Becker, 1963; Patterson, 2002; Prinstein & Cillessen, 2003; Sutherland, 1974).

Once age, job/employment and severity of drug use (recreational and problematic) was controlled for there was only one significant predictor, which showed that always being in trouble with the police with your friends predicted being a drug using offender. The fact only being in trouble with the police with friends was predictive was again unsurprising since research in this area shows that young people tend to associate with likeminded criminal peers, who have similar interests (Fergusson et al. 2002; Knecht et al. 2010; Schaefer, 2010). It may illustrate that group offending is favourable as it reduces the risks associated with crime and getting caught (McGloin & Stickle, 2011; Zimmerman & Vásquez, 2011). It is difficult in this research to differentiate between group conformity and group offending or to ascertain if antisocial peers were specifically selected by the participants or if peers merely facilitated their deviant behaviour, but this is also a problem associated with other research in this area (Haynie & Osgood, 2005; McGloin & Stickle, 2011; Thornberry et al. 2003; Warr, 2002). Although following Moffitt's (1993) proposition that life-course persistent offenders, which are similar to the drug using offenders in this study, are more likely to seek out and select deviant peers, peer selection might be more

influential when it comes to predicting delinquency, which is in accordance with other research in this area (Haynie & Osgood, 2005) but would require further investigation. While peer affiliations change over the life-course and peer influence wanes in adulthood (Gardner & Steinberg, 2005; Steinberg & Monahan, 2007), peer influences can have a long term impact on behaviour and continued relationships with other criminals reinforces further involvement in crime and has also been linked to recidivism (Giordano, Cernkovich & Holland, 2003; Wright & Cullen, 2004); a finding that also applies to drug use (see Hawkins & Fraser, 1987). The above results must also be interpreted in accordance with the methodological limitations associated with using retrospective perceptions of peers, which research has shown may not be accurate (Aseltine, 1995) and asking the peers themselves was not an option in this study. Also the temporal ordering of peer factors, crime and delinquency is problematic, as already discussed, which makes it difficult to ascertain drug use and delinquency may affect peer selection, but peer selection may also affect drug use and delinquency (Dishion & Owen, 2002; Poulin et al. 2011). Longitudinal data is better at capturing temporal ordering and reciprocal relationships (Menard & Elliott, 1990), which may mean the influence of peers has been overestimated in this research due to an inability to account for temporal order selection effects (Aseltine, 1995; Kandel, 1996). Also, despite the plethora of research on peers the social transmission of delinquent behaviours among peers is difficult to determine (cf. particularly when the influence of peers is affected by a number of other factors (Müller & Minger, 2011), which makes drawing any firm conclusions from the data problematic. Despite these limitations, the results show that hypothesis four was only partially accepted as only one peer factor, being in trouble with the police along with friends, predicted being a drug using offender.

4.3.2 School Factors

The drug using offenders differed significantly from the drug using non-offenders on all of the school variables measured. The drug using offenders were significantly more

likely than the drug using non-offenders to report themselves as popular at school, disruptive in class, receiving no qualifications from school and they were more likely to truant, more frequently, and be expelled. Previous research in this area illustrates misbehaviour in school predicts criminality and drug use (Weerman et al. 2007). Misbehaviour also disrupts the class, which has been associated with decreased academic achievement and students getting suspended and expelled (Figlio, 2007; Gottfried 2014); results that relate to the findings of this research. The drug using offenders in this research were also more likely than the drug using non-offenders to truant, truant more frequently and be excluded from school, which is in accordance with the research that shows truancy and exclusion leads to the initiation and continuation of offending and drug use (Henry et al. 2009; Loeber & Farrington, 2000; Thornberry & Henry, 2009). The more days truanted the greater their drug use (Seeley, 2008), which may help to explain why the majority of drug using offenders were problematic drug users since they truanted more frequently. Previous research also shows those permanently excluded from school are at a higher risk of obtaining a criminal record than non-excluded students (Berridge et al. 2001). In contrast the drug using non-offenders were significantly more likely than the drug using offenders to enjoy school, which shows students who like school are more likely to develop strong attachments to school, do well at school, not drop out and are thus less likely to initiate antisocial behaviours, use drugs and be delinquent (Bond et al. 2007; Catalano et al. 2004; Fothergill et al. 2008; Spratt, Jenkins & Doob, 2005). A strong bond to school has been shown to act as a protective factor against deviant behaviour, including delinquency and drug use (Catalano, et al. 2004; Hart & Mueller, 2013; Payne, 2009; Spratt, Jenkins & Doob, 2005), but it did not stop the non-offenders in this research from using drugs, which is in contrast to other research in this area (see Catalano et al. 2004; Ford, 2009). In the future it would be interesting to compare the drug using non-offenders to a group of non-drug using non-offenders to see if they had a weaker bond to school (Ford, 2009; Hirschi, 2009; Sampson & Laub, 2003). Once age, job/employment and severity of drug use (recreational and problematic) was controlled for in the regression analysis only receiving no qualifications from

school and being expelled from school predicted being a drug using offender. These findings replicate the plethora of evidence showing that people with fewer qualifications are more likely to commit crime (Farrington, 2003; Loeber, et al. 1998) and may help to explain why the drug users who received no qualifications from school went onto become offenders, while the drug users who received some qualifications from school did not. Low school achievement is one of the strongest predictors of offending (Farrington, 2003; Loeber et al. 1998) and offenders have low levels of education and achievement, particularly when compared to non-offenders (Davis, Sanger & Morris-Friehe, 1991; Prison Reform Trust, 2015), which is likely to lead to unemployment, and for some crime (Hurry, Brazier, Parker & Wilson, 2006; Lochner & Moretti, 2004). For those with limited legitimate employment opportunities crime can become a practical response to coping with everyday problems like paying the bills and buying food, particularly for those with limited resources and poor coping skills (Agnew, 2010; Lochner & Moretti, 2004; Zamble & Porporino, 1990), which may explain why some drug users went onto become criminals and others did not. These findings tie in with the demographics of the drug using non-offenders in this research since just under half (47.65%, n=71) were also unemployed prior to imprisonment, although this does not explain why the majority of drug using offenders with jobs in this research committed crime, which maybe attributable to other factors, like social resources (e.g. benefits), low wages, support and coping skills (Agnew, 2006; Waters & Moore, 2002). Being excluded from school also predicted being a drug using offender, which replicates previous research that has continually shown boys excluded from school are more likely to have used drugs, been in trouble with the police, arrested and summoned to court than those still in school (McCrystal et al. 2006). The drug using offenders in this research were 28 times more likely to have been expelled from school than the drug using non-offenders, which could have an effect on drug use and offending in a number of ways. Being excluded from school negatively impacts on academic achievement, school completion, qualifications obtained and the opportunity to learn prosocial behaviours (Costenbader & Markson, 1998). Excluded children are also more likely to have no or

weak bonds to school, which also predicts academic underachievement and a reduced likelihood of completing school and thus receiving any qualifications (Bond et al. 2007; Oluremi, 2013). Excluded individuals also have time to partake in unsupervised wandering with peers, which has been shown to lead to both drug use and crime since those who feel alienated from school are more likely to reject conventional norms and be orientated towards play and a search for fun, which often includes drugs and crime (Henry & Thornberry, 2010; Lotz & Lee, 1999; Osgood & Anderson, 2004; Stoolmiller, 1994). Thus the link between educational failure and expulsion has been continually identified as key components of the 'school to prison pipeline' (Christle, Jolivet & Nelson, 2005; Wald & Losen, 2003).

However the exact relationship between delinquency, drug use, exclusion and receiving no qualifications from school is unclear since research suggests that under achievers and those who are excluded are more likely to use drugs and be delinquent (Ellickson et al. 2004; Fothergill & Ensminger, 2008; Farrington, 2000; Loeber & Farrington, 2000; McAra, 2004) but also delinquent drug using individuals are more likely to under achieve at school and be excluded from school (Fergusson et al. 2003; Tanner et al. 1999; Thornberry & Henry, 2009). Therefore the above results must be interpreted in accordance with the methodological limitations associated with research in this area, particularly when using a cross-sectional research design that makes disentangling the reciprocity and temporal ordering of variables problematic (Menard & Elliott, 1990). Another issue that may explain some of the different findings discussed above are the different definitions pertaining to school dropout, truancy and exclusion, along with the different definitions of delinquency and substance use, all of which are inconsistent across the studies and thus may have an influence (see Townsend, Flisher & King, 2007). Also this research did not examine other factors that may have impacted on educational attainment, truancy and expulsion, including learning disabilities, disorders like ADHD and conduct disorder or teacher behaviour, which all been shown to influence many of the school factors already discussed (Carroll, Maughan, Goodman & Melzter, 2005; Christle, Jolivet &

Nelson, 2005; National Council on Disability, 2015). Therefore, although the results from this study may be affected by some of the issues discussed, it does show that receiving no qualifications from school and being expelled from school predicted being a drug using offender, which meant hypothesis five (receiving no qualifications from school, not enjoying school, being popular and disruptive in school, truanting and being excluded will predict being a drug using offender) was only partially accepted.

4.3.3 Summary

Peer groups and school often provide a learning environment conducive to delinquency and drug use, whether that relates to attitudes, techniques or merely information, both inform people's decisions about drugs and crime, but can also positively reinforce both delinquency and drug use (Akers, 2009; Kumar et al. 2002; Patterson, 2002; Sutherland, 1947). Alternatively prosocial peers, strong bonds to prosocial institutions like school and educational achievement have also been shown to protect against both drug use and crime (Catalano et al. 2004; Fothergill & Ensminger, 2006; Hirschi, 2009; Kumpfer & Turner, 1991; Payne, 2008; Snyder, Gwaltney & Landeck, 2015; White et al. 2006). However, exclusion from school results in weak bonds to school, which strengthens bonds to deviant peers that increases the likelihood of drug use and delinquency, which further weakens the bonds to conventional society and these factors reinforce and exacerbate each other to 'create a life-course trajectory away from conventional success' (Thornberry & Henry, 2009, p.250). Thus the findings from this research were in accordance with much of the literature in this area, but as previously suggested these three factors may actually be interrelated and bidirectional relationships exist. Always being in trouble with the police with friends, may also explain why the drug using offenders got fewer qualifications from school, since research illustrates that being arrested by the police has a negative impact on finishing high school (Kirk & Sampson, 2013; Webbink et al. 2013). Research also illustrates that the relationships between peer and school factors

also have a bidirectional relationship that is not only mediated by other factors, but caused by other factors (e.g. childhood maltreatment, disorders like ADHD, neighbourhood and socioeconomic background). Despite the complicated relationship both peer and school factors can also be used to differentiate between types of offenders. The life-course persistent offenders seek out delinquent peers and take advantage of the opportunities they provide, but also had lower levels of educational achievement (McGloin & Stickle 2011; Moffitt, 1993, 2003), which is on par with the drug using offender group in this research. In conclusion, one peer factor and two of the school factors predicted being a drug using offender. Thus the above results illustrate that being in trouble with the police along with friends, receiving no qualifications and being expelled from school differentiates between drug users who are offenders and drug users who are not offenders.

4.4 Coping

This section discusses the results of the research that relates to coping strategies and how they differ between drug using offenders and drug using non-offenders, to ascertain whether coping strategies predict being a drug using offender, which will answer the last research question in this study and hypothesis six (drug using offenders will have different coping styles to the drug using non-offenders and coping styles will predict group membership).

According to the literature drug users and offenders are more likely to implement maladaptive avoidant forms of coping to manage their problems, negative life events and daily stressors (Ferrer et al. 2010; Gullone et al. 2000; Ireland, Bousted & Ireland, 2005; Skeer et al. 2009; Wagner et al. 1999; Zable & Porporino, 1990) and less likely to implement adaptive forms of coping (Cooper et al. 1997; Hyman et al. 2009; Wills et al. 2001). In this research the drug using offenders had a significantly higher level of avoidance coping than the drug using non-offenders for both cognitive avoidance coping and behavioural avoidance coping. Cognitive avoidance is characterized by

cognitions that serve to discount, deny, suppress, distract, minimise or psychologically distance oneself from the source of stress, or 'accepting the situation as it is and accepting the basic circumstances cannot be altered' (Cronkite & Moos, 1995, p. 578). Behavioural avoidance is characterised by engaging in behaviours aimed at alleviating the negative affect being caused by seeking alternative rewards, acting impulsively, engaging in tension reducing behaviours, venting emotions, or by observable physical avoidance that consists of distancing oneself from the situation, and includes walking away, substance use, self destructive behaviours and undertaking new activities to find a source of relief (Cronkite & Moos, 1995). Although this research found that the drug using offenders tended to implement a combination of both behavioural and cognitive avoidant coping strategies, this contrasts with previous research, which suggests male offenders and drug users, particularly problematic drug users, are more likely to use cognitive coping strategies (see Avants, Warburton & Margolin, 2000; Mohino, Kirchner & Forns, 2004). However the findings are compatible with other research in this area that shows individuals often employ more than one type of coping strategy (Folkman, 1991) and Ruchkin and colleague's (1999) research on young offenders found that offenders relied on both cognitive and behavioural avoidance coping significantly more than non-offenders. Whether behavioural or cognitive, the implementation of avoidance coping has been associated with some short term benefits, but for the most part avoidance coping tends to be associated with poorer outcomes (Brissette, Scheier & Carver, 2002) and has also been associated with more internalising symptoms (e.g. anxiety, depression) and externalising problems (e.g. with behaviour, substance use, delinquency/crime) (Hoffman, Levy-Shiff, Sohlberg & Zarizki, 1991; Rhode, Lewinsohn, Tilson & Seeley, 1990; Steele et al. 1999; Windle & Windle, 1996), which may explain why their use was more prevalent among the drug using offenders. To reinforce the findings of this research, relapse and re-offending have also been linked with maladaptive coping responses (Dowden, Antonowicz & Andrews, 2003) because individuals seek the path of least resistance to restore affective balance and deal with problems, which is why established coping strategies like drug use and crime are difficult to stop (Zeidner &

Endler, 1996) and thus may help to explain their prevalence in some people's lives, but not others.

However, once age, job/employment and severity of drug use (recreational and problematic) was controlled for in the regression analysis only behavioural avoidant coping predicted being a drug using offender. This may explain the high levels of substance use among this group, particularly problematic drug use, which is considered to be a behavioural form of escape avoidant coping (Lazarus & Folkman, 1984). However, the high levels of problematic drug use among the drug using offenders may also be attributable to the implementation of drug use as a form of avoidant (maladaptive) coping since using drugs for this reason is associated with developing more problematic patterns of use (Holahn et al. 2001; Hyman et al. 2009; Simons et al. 2005). The implementation of behavioural avoidant coping may also help to explain why this group of drug users became offenders since crime is also considered to be a maladaptive form of coping and could constitute a form of behavioural avoidance in the sense it usually involves an action that alleviates the negative affect being caused by seeking alternative rewards, crime is often considered an impulsive act that is usually about finding a source of relief (e.g. to obtain money), and in some instances, may be about venting emotions (e.g. violence) (Cronkite & Moos, 1995; Giancola, 2003). Thus behavioural avoidant coping differentiates between drug users who go onto become offenders and those who do not. Although both drug use and crime can be seen as maladaptive behavioural avoidant coping strategies they are implemented to varying degrees within these two groups, which ties in with the literature suggesting their implementation will also depend on their appraisal of the situation, the resources available to assist in their coping and their own range of coping strategies (Greenaway et al. 2015; Holahan & Moos, 1987; Lazarus, 2006). Coping may suggest why not all drug users go onto become offenders since they have more prosocial ways of resolving their issues and causes of stress without resorting to crime. Coping may also explain why the majority of the drug using offenders had more controlled recreational levels of drug use (94.59%, n=105)

compared to the drug using offenders who were mostly problematic drug users (65.77%, n=98). Those with poorer and fewer coping strategies and styles, which includes offenders and drug users, are more likely to implement maladaptive avoidant forms of coping (Ferrer et al. 2010; Ireland et al. 2005; McKay et al. 1999) and once established maladaptive avoidant coping strategies are difficult to stop (Zeidner & Endler, 1996).

The above results must be interpreted while being mindful of the methodological limitations associated with relying on data obtained from drug using offenders in prison. Since all of the offenders used in this research were in prison, this could have skewed the coping results, since research suggests previous prison sentences and the length of time spent in prison affects the coping strategies used (Brown & Ireland, 2005; Gullone, Jones & Cummins 2000; Mohino, Kirchner & Forns, 2004). Mohino and colleagues (2004) found those who had been in prison for more than 4 months were more likely to use positive reappraisal as a coping strategy than those who had spent less time in prison, who were more likely to use emotional discharge. Brown and Ireland (2006) also found that coping strategies change over the initial period of imprisonment from emotion/avoidant coping to detachment coping. Being in prison may also have influenced why the offenders perceived their initial problem/stressor as uncontrollable, since offenders are denied autonomy and often feel helpless (Goffman 1961; Sykes, 1958). Also negative mood states induced by incarceration/imprisonment may also be linked to higher levels of substance use (Eftekhari, Turner & Larimer, 2004) and the distress experienced in prison may have led to dysfunctional maladaptive coping (Carver & Scheier, 1994). Thus the offenders may have found it 'necessary to modify the cognitive templates or alter the coping strategies they use to perceive, respond and meet the environmental demands' (Lau & Tin, 1996, p.30). This point also ties in with the criticisms about the validity of using situational coping scores as an indicator of more general coping tendencies (dispositional coping) (Parkes, 1994), although other research has found the CRI and process-orientated measures of coping accurately reflect coping tendencies over time

and across situations (Holahan & Moos, 1990), which shows it can be used to illustrate an individual's general coping tendencies.

Other methodological limitations that must also be considered when considering the results of this research relate to coping and the measurement of coping. It must be noted that this research used a self-report coping measure which may raise issues of accuracy particularly since research suggests that the retrospective recall of coping leads to cognitive coping being underreported and an over reporting of behavioural coping strategies even after only a couple of days (see Stone et al. 1998). Cross sectional studies have also been argued to only show correlates of coping rather than efficacy of coping because the direction of the relationship between coping and adjustment and emotional distress cannot be determined (Compas et al. 2001). It is also difficult to draw comparisons between studies and some of the differences discussed might be attributable to the different coping measures used and the different definitions of coping that exist across the studies. There has been an increase in the number of coping measures available despite a lack of clarity about the actual construct of coping or its properties, including whether an individual has static and/or flexible coping tendencies, thus there is a need for clear and consistent definitions of coping styles and subsequent behaviours/cognitions, as well as clarity about the different coping domains (Benson & Hagtvet, 1996; Blalock & Joiner, 2000; Greenaway et al. 2015; Parker & Endler, 2006; Schwartz, Neale, Marco, Shiffman & Stone, 1999; Skinner et al. 2003; Windle & Windle, 1996). However, research has validated the CRI as a consistent measure of coping and the subscales of behavioural avoidance and cognitive avoidance as distinct constructs (Blalock & Joiner, 2000; Moos, 1993). It must also be noted that the coping styles and strategies implemented may also be a result of other factors not measured in this research, including personality traits, emotional intelligence and levels of education (Billings & Moos, 1981; Conner-Smith & Flaschbart, 2007; Moradi et al. 2011; Ruchkin et al. 1999; Suls, David & Harvey, 1996; Vollrath, Torgersen & Alnaes, 1995).

In conclusion, coping strategies differentiated between the drug using offenders and the drug using non-offenders. The drug using offenders were significantly more likely to implement avoidant coping strategies, both cognitive and behavioural strategies, more than the drug using non-offenders. However once age, job/employment and severity of drug use (recreational and problematic) was controlled for only behaviour avoidance coping predicted being a drug using offender. Therefore behaviour avoidance coping differentiates between those drug users who go onto become offenders and those who do not, indicating that both drug use and crime are implemented as maladaptive coping strategies. Thus these findings seem to support Zamble & Porporino's (1990) coping criminality hypothesis and the self-medication model of drug use (Darke, 2012; Khanzian, 1985). Coping is implemented to maintain a desirable level of personal and social functioning premised on personal resources despite the problems and demands faced (Valdés & Arroyo, 2002 as cited in Ferrer et al. 2010), which may also help to explain differences in offending and drug use severity (problematic and recreational) among the offender group in this research, but this would require further analysis that is beyond the scope of this thesis. It may also suggest why not all drug users go onto develop more problematic patterns of drug use regardless of the drug being used, because they have adaptive coping strategies or a more diverse array of coping strategies other than drug use. Thus the above results illustrate that behavioural avoidant coping differentiates between drug users who are offenders and drug users who are not offenders.

4.5 Summary

The results from this study have built on the small amount of previous research seeking to explain the existence of drug use and crime in some peoples lives, including studies that attempt to disentangle the drug-crime relationship and identify the reciprocal nature of both behaviours (see D'Amico et al. 2008; Simpson, 2003; Stevens, 2011; Nurco, 1998; White et al. 1999). The findings of this research show that

once age, job/employment and severity of drug use (recreational and problematic) are controlled for that a high number of negative life events experienced before age 18, earlier age of onset for drug use, the motivations underpinning drug initiation (curiosity and to socialise with friends), always being in trouble with the police with friends, receiving no qualifications from school, being expelled from school and behavioural avoidant coping predicted group membership and differentiated between the drug users that went onto become offenders and those who did not. All of the factors identified here differed along offending lines since severity of drug use (recreational and problematic) was controlled for in the regression analysis. Thus the findings from this research indicate that it is these factors not drug use that leads to offending and it is the presence of these factors that predicts whether a drug user goes on becomes an offender or not rather than their drug use. It may also show that drug use and criminality have a common cause and both behaviours are implemented as maladaptive avoidant coping strategies by the drug using offenders, but this would require further investigation. However, it would be interesting to see which factors differed between offenders that controlled their drug use and offenders who went on to develop more problematic patterns of use; a study that although beyond the remit of this thesis, would help to further disentangle the relationship between drug use and crime, particularly within these different sub-populations of drug users and offenders.

For the most part the findings from this research were in accordance with other research in this area, but also made substantial contributions to the academic literature on drugs and crime. Research has continually shown a high number of negative life events, earlier age of onset for drug use, delinquent peers, poor school attainment, being excluded from school and avoidant coping predict both drug use and criminality (Aebi et al. 2014; Farrington et al. 2009b; Fothergill & Ensminger, 2008; Hammersley et al. 2003; Loeber & Frrington, 2000; Montgomery et al. 2008; Ring & Andersson, 2010; Thornberry & Krohn, 1997; Walters & Urban, 2014). However, this is one of the few studies that compares drug using offenders with drug using non-offenders and identifies that these factors differentiate between the drug

users that go on to become offenders and those that do not. The findings from this research also show that drug using offenders implement behaviour avoidance as a coping strategy, which may indicate that drugs and crime are used as avoidant maladaptive coping mechanisms for the drug using offenders, supporting Zamble and Porporino's (1988, 1990) coping-criminality hypothesis and the more extensively researched proposition that drug use is implemented as a form of self-medication (Khantzian, 1985, 1997; Skeer et al. 2009; Weiss et al. 1992). The use of drugs as an avoidant coping mechanism is a strong predictor for developing more problematic patterns of use (Hyman et al. 2009; Lewis & Hove, 2008), which may also explain the difference in drug use severity among the drug using offenders compared to the non-offenders, but this would require further investigation. Coping may also help to explain the differences that exist among offenders that relate to the prevalence and severity of crime since research suggests maladaptive coping strategies may only be implemented if the individual has a limited range of coping strategies or more effective prosocial coping strategies are unavailable (Ferrer et al. 2010; Ireland et al. 2005), which may also be influenced by situational factors, like a supportive family and socioeconomic status (Billing & Moos, 1982; Holahan & Moos, 1987; Lazarus & Folkman, 1984; Menaghan, 1983). This would also explain why some individuals experience many of the risk factors already discussed (e.g. a high number of negative life events and a high level of stress) but experience no physical and mental health problems, do not commit crime and do not use drugs, particularly since coping is related to ongoing current circumstances (Holahan & Moos, 1987). Coping also has the capacity to help explain why drug use and crime are persistently maintained over the life-course for some, because once maladaptive coping strategies like drug use and crime have been established they are very difficult to stop. Maladaptive avoidant coping strategies may also account for the high levels of re-offending and relapse among drug using offenders (see Langan & Levin, 2002; Prison Reform Trust, 2015; UKDPC, 2008), but this would require further investigation and analysis of the data.

The findings from this research show that avoidant coping, specifically behavioural avoidant coping, predicts being a drug using offender, which is in line with the research suggesting avoidant coping is an independent risk factor and predicts drug use (Eftekhari, Turner & Larimer, 2004), particularly problematic drug use (Wagner, Myers & McIninch, 1999) and crime (Aebi et al. 2014). Avoidant coping may also explain some of the other factors that differentiate the drug using offenders from the drug using non-offenders. For example, if the drug using offenders experienced problems at school then due to their avoidant coping strategies and skills they are more likely to remove themselves (avoid) from school via truancing or misbehave to get themselves excluded from school to avoid the problems, but this would require further analysis of the data that is beyond the remit of this thesis. The findings from this research show that both drug use and crime are attributable to common background factors across different domains (family, school and peers) and the implementation of avoidant coping strategies may help to explain why only some of the people who experience multiple risk factors (adverse family, negative life events, abuse, socioeconomic deprivation) go on to become a drug using offender, while others control their drug use and do not go onto commit crime. It is also significant that both behaviours are commonly initiated during adolescence before the age of 15 (see Farabee et al. 2001; Farrington, 2008; Nurco et al. 1999) since the coping literature suggests that before the age of 15 adolescents have a more limited range of coping styles and strategies, which makes them more likely to implement avoidant maladaptive coping styles, than after age 15 when they are more likely to utilise adaptive efficacious coping strategies (Ebata & Moos, 1994; Hauser & Bowlds, 1990; Seiffge-Krenke, 1995; Seiffge-Krenke et al., 2000, 2001; Williams & McGillicuddy-De Lisi, 2000).

Disentangling the reciprocity, temporal ordering of variables and complicated interplay of factors in this research has proved problematic (Menard & Elliott, 1990). All of the variables identified have both direct and indirect effects not only on drug use and crime, but also on each other. Coping styles, particularly maladaptive avoidant

styles, have been related to parenting practises, particularly parental rejection and emotional warmth (Ruchkin et al. 1997, 1999), children will often model their parent's coping (Abaied & Rudolph, 2010; Kliewer et al. 1996), family conflict has also been linked to avoidance coping (Moos & Moos, 1984), low levels of education increases use of avoidant coping (Billings & Moos, 1981), avoidant coping predicts negative feelings about school (MacCan, Lipnevich, Burrus & Roberts, 2012), those who have experienced more negative life events and certain negative life events (e.g. health-related) are also more likely to implement avoidant coping strategies (Billings & Moos, 1981; Ebata & Moos, 1994; Folkman & Lazarus, 1980; Mattlin, Wethington & Kessler, 1990). In contrast, avoidant coping predicted more negative and stressful life events, poorer outcomes, including depression, addiction and suicide (Holahan et al. 2005; Hyman et al. 2009; Woodhead, Cronkite, Moos & Timko, 2014) and avoidant coping also predicts both drug use and crime (Aebi et al. 2014; Eftekhari et al. 2004; Hammersley et al. 2003; Wagner et al. 1999). Thus the bidirectional nature of the relationships discussed and the relationship of the identified factors to drugs and crime make disentangling relationships difficult. Even with a longitudinal study understanding the full developmental sequence of the causes, correlates and consequences is almost impossible since no research can measure every possible variable and account for all extenuating factors when examining complex human behaviours like drug use and crime.

Overall, the findings from this research indicate that drug use and offending are two distinct behaviours that are caused by similar and different risk factors that might coexist in some peoples lives but not others, and coping could be the mediating factor that determines whether drug use and crime are implemented as maladaptive coping strategies, including the degree of severity, rather than there being a causal relationship between drug use and crime. This research showed a high number of negative life events in childhood, earlier age of onset for drug use, reasons for drug initiation, delinquent peers, poor school attainment, being excluded from school and behavioural avoidant coping differentiated between the drug users that went on to

become offenders illustrating that it is these factors that influence the relationship between drug use and crime. For the majority of the drug using offenders in this research (67.11%, n=100), crime was initiated before drug use and both seemed to co-exist as a functional part of their everyday lives, drawing into question the stereotype portrayed by drug policy and undermining the notion that drug use causes crime (Home Office 2010, 2012). The findings from this research illustrate that drugs and crime are attributable to a third factor(s) and thus contributes to the dearth of research in this area, which has implications for drug policy and treatment.

4.6 Implications for Prevention Treatment and Drug Policy

It is hoped that the findings of this research can be used to inform a more evidence based drug strategy as well as intervention programmes aimed at reducing both offending and drug use.

Current drug policy and treatment is currently premised on the notion that drug use causes crime (Home Office, 2008, 2010, 2012, 2013; NTA, 2009, 2012) and the current drug strategy clearly states that ‘the Government will successfully tackle the crime and damage that drugs and alcohol dependence cause to our society’ (Home Office, 2010, p.3). However this research illustrates that drugs and crime are not necessarily linked, even among drug using offenders. In this study, many of the differences between drug using offenders and the drug using non-offenders are attributable to the risk factors known to underpin offending. This suggests that drug use and criminality may be caused by other factors rather than each other and it is the presence of risk factors linked to offending that differentiates between the drug users that go to become offenders and those that do not; not drug use. The idea that drug use causes crime is premised on a small portion of the drug using offender population who are the most problematic drug users and the most prolific offenders (Hammersley, 2011; Home Office, 2007; Ministry of Justice, 2013; UKDPC, 2008). Thus drug policy ignores the complexity of the drugs-crime relationship, how it differs between different sub-

populations of offenders and/or drug users and the wider social issues that influence the drug-crime relationship. Instead it is premised on skewed statistics, which invariably support the stereotypical and overly simplistic notion that drug use causes crime.

Although, the government claims to be 'committed to an evidence-based approach' (Home Office, 2010, p.9) this research suggests that this might not be the case. For drug policy to be premised on scientific evidence it needs to acknowledge the complexity of the drug-crime relationship and accept the research that identifies the co-existence of drugs and crime in people's lives, which is often caused by other factors. Until the other factors underpinning drug use and criminality are tackled then it is unlikely that drug use or criminality will fall particularly since most rehabilitation and drug treatment programmes aimed at drug using offenders are premised on this notion, that drug use causes crime (Home Office 2010; NTA, 2009, 2012).

Current drug policy advocates drug treatment is an effective way of reducing crime and only once drug using offenders are in 'full recovery and off drugs and alcohol for good... that individuals will cease offending' (Home Office, 2010, p.18). The more recent introduction of drug recovery outcome measures as part of the payment by results programme is also premised on the notion that drug use causes crime and advocates a reduction in offending and continued non-offending for the individual accessing treatment (Home Office n.d., 2013). Payment for a reduction in offending for those drug using clients accessing services will undoubtedly raise issues in terms of the drug services provided and the provision of treatment (quality and availability) for those clients who will never reduce their drug use or stop offending (for a review see Roberts, 2011). However it is not just drug treatment but also the rehabilitation programmes aimed at drug using offenders that are premised on there being a relationship between drug use and crime, for example Addressing Substance Related Offending (ASRO) (McMurrin & Priestley, 1999). The accredited programme Addressing Substance Related Offending (ASRO) seeks to address and reduce substance use as an underlying factor of criminality and success is measured via a

reduction in re-offending. ASRO is premised on the stereotypical relationship between drug use and criminality, rather than acknowledging that other factors cause drug use and offending. This may explain why a recent evaluation of ASRO in the community found low completion rates and no significant reductions in reconviction among programme completers (Palmer et al. 2011). Thus the drug-crime relationship that is used to underpin drug treatment may be setting drug using offenders up to fail particularly since the findings from this research along with other research in this area (see Simpson 2003; Stevens, 2011) suggests drugs does not cause crime, but instead both behaviours have different risk factors. Until this is acknowledged and tackled it is unlikely that drug treatment or rehabilitation programmes aimed at drug using offenders will ever be effective in reducing either drug use or criminality.

One of the important findings from this research may also contribute to increasing the efficacy of drug policy and treatment. The findings from this research showed that drugs and crime are implemented by those who use avoidant coping strategies. This may indicate that drug use and criminality are used as coping mechanisms by drug using offenders illustrating that coping maybe a key skill that needs to be more heavily integrated in to both drug treatment and rehabilitation programmes targeted at drug using offenders. Although both drug treatment and offender rehabilitation programmes already contain elements of coping skills training (e.g. drug treatment teaches users to cope with triggers, cravings and cues to prevent relapse and CBT also teaches elements of prosocial coping) there is no programme that fundamentally addresses and changes a drug using offenders coping strategies. This is surprising since research shows that both drug use and crime decline when more effective coping strategies are learnt (Aldwin et al. 1996; Hoffman & Cerbone, 1999). From this research it would appear that modifying the individual's coping skills would improve the individual's ability to function in their social environment and may help to reduce both drug use and offending but this is an area that requires further research.

4.7 Further Research

The group comparisons compared the drug using offenders with the drug using non-offenders because this was the focus of this research. However there is also scope for comparisons to be made to see if there are any significant differences between the offenders who control their drug use (recreational users) and offenders who do not (problematic drug use). There is also scope to compare the drug using non-offenders who self-reported committing crime but had never been caught, with the drug using offenders who had been caught and received a criminal conviction, particularly in relation to coping, since the literature in this area suggests those with better coping strategies and more resources would be less likely to resort to maladaptive coping behaviours like crime and problematic drug use. Analysing the different subgroups in the samples would help to illustrate not only the real world complexities associated with drug use and crime, but also with undertaking research with populations such as drug using offenders. The findings from this research show that drug using offenders are complex to study, particularly when it comes to disentangling the relationship between drugs and crime and the risk factors underpinning each behaviour. Thus this research would have benefitted from having control groups of non-drug using, non-offenders and a group of problematic drug using non-offenders, although the latter would have been difficult to find since most problematic drug users seem to have a criminal conviction and those who do not remain a hidden population. By analysing the differences between these different subgroups as well as having two control groups would have helped to disentangle the drug crime relationship even further since it would allow comparisons to be made with much cleaner and less contaminated samples.

As the current research used only males, it would be interesting to repeat this study with females. This might be particularly important given that patterns of drug use and offending are known to differ between men and women (Eaton et al. 2012; Farrington & Painter 2004).

Unpacking the data even further would also have helped to extrapolate on the differences between drug using offenders and drug using non-offenders, including specific family factors (disrupted family, abuse, parental criminality and drug use), specific negative life events and a more detailed analysis of the impulsivity and coping subscales. Although this would have provided a more nuanced understanding of the differences between drug using offenders and drug using non-offenders it would have extended the scope of this thesis beyond its initial remit and resulted in an unwieldy project.

A more nuanced investigation into the use of drugs to cope with imprisonment would also have been beneficial and may help to examine the link between drug detoxification, drug use, self-harm and suicide in prison. Alongside this an investigation into the use of legal highs in prison, specifically synthetic cannabinoids, would also fill a gap in academic knowledge since a recent report suggests synthetic cannabinoids seem to have become the drug of choice in many men's prisons (HMCIP, 2015).

4.8 Methodological Considerations

This section will briefly highlight the methodological strengths of this research before going onto to consider the methodological limitations associated with this research.

4.8.1 Methodological Strengths

The research was characterised by several strengths that need to be recognised.

- The research compared drug using offenders with drug using non-offenders, who were not a clinical sample, to try and disentangle the drug-crime relationship. Most of the previous research in this area focuses on offender and/or drug

treatment (clinical) samples to examine the drug-crime relationship (see Bennett & Holloway, 2007; Boreham et al. 2007; Gossop, et al. 2006), which invariably skews the results since research consistently shows these tend to be the most problematic drug users and the most prolific offenders, and the majority of drug users do not offend.

- The cohorts of drug using offenders and drug using non-offenders were fairly large, and the drug using offenders were fairly split between recreational and problematic drug users who represented just over half of the sample.
- The research findings contribute to the dearth of recent research on the drug-crime relationship, particularly those premised on UK samples. Much of the drug-crime literature is dated or from other countries (e.g. USA). It will also contribute to the lack of research examining the notion that both drug use and criminality is caused by a third factor, specifically poor coping.

4.8.2 Methodological Limitations

Despite the strengths of this research, this study also had a number of limitations that should be taken into account when interpreting the results.

- The fact neither sample was randomly selected meant the results may not be generalisable to other samples of drug users and/or offenders. Not all drug users or offenders are alike; they are heterogeneous populations and so trying to group them into convenient categories was problematic and over simplified the complex interplay of events that influenced both drug use and criminality. However, it was also important to create some groups so comparisons could be made and if too many groups had been created then drawing meaningful conclusions would have been problematic. A concerted effort was made to make the sample as diverse as possible to reflect a full range of substance users

and their experiences, which is why the 6 problematic drug users were left in the non-offender sample. Unfortunately due to the problems associated with gaining access to the offender sample it was not as wide or diverse as originally anticipated, which means future research would benefit from using offenders from more than one prison and other correctional settings and using non-offenders not predominately drawn from a student population. Also as Pudney (2002) highlights no matter how detailed survey data is, it inevitably fails to capture the complex and dynamic individually specific factors that underpin both drug use and offending.

- The two groups (drug using offenders and drug using non-offenders) were not comparable and poorly matched, since they differed significantly on variables that were measured (e.g. age and employment/job), but research also suggests it is likely that the two groups differed significantly on other variables that were not measured or controlled for in the analysis (e.g. level of education, literacy, socioeconomic background and disorders such as ADHD, PTSD and Personality Disorders), which could have contaminated the research findings. Some of the differences found between the two groups may be attributable to these unmeasured and uncontrolled variables, which may actually be the third factor underpinning drug use and crime. A more comparable non-offender group might have been unemployed participants attending a job centre (see Fenner, Gudjonsson & Clare, 2002). However a sample from the job centre would not have been representative of drug use among the general population, which crosses the social strata (Aldridge, 2008; Sampson, 2007) and would have resulted in a distorted drug using group since research shows drug use tends to be higher, particularly problematic drug use, among those who are unemployed (Hay & Bauld, 2008; Peck & Plant, 1986). Although obtaining a comparable control group from the job centre would have helped to improve the inferences drawn from comparing the two groups, it would have subsequently skewed the groups on a number of other factors specifically drug

use, as already discussed, and coping strategies (Grossi, 1999; Haan, 1977; Mantler, Matejicek, Matheson & Anisman, 2005; Menaghan, 1983), which would also have effected the reliability and validity of any inferences drawn.

- Due to the fact a number of variables identified in the literature as being a possible third factor underpinning drug use and crime were omitted from this study (e.g. ADHD, Personality Disorder, socioeconomic background, educational attainment and neighbourhood) it is difficult to draw firm comparisons between the two groups since some of these unmeasured variables may be the third factor explaining both drug use and crime. However, this limitation applies to many studies in this area, bar some comprehensive longitudinal studies like the Cambridge Study of Delinquent Development (CSDD), since it is almost impossible to measure every possible variable and account for all extenuating factors when researching complex human behaviour.
- The validity of the self-reported data, particularly since respondents had to retrospectively recall their childhoods, criminal activities and their substance use was also a limitation associated with the accuracy of the data since it might be subject to the known problems of biased recall and reconstructed memory (i.e. creation of false memories or memory alteration). Due to the offender sample being in prison the self-reported level of offending could be checked against their official records. However, it was impossible to estimate the level of error that may have occurred in the reporting/misreporting of other data, particularly drug use, which is often under reported (McGregor & Makkai, 2003; Patton, 2005). Despite research emphasising the under reporting of drug use, previous research has also shown that self-report data accurately reflects drug use (Cook, Bernstein & Andrews, 1997), although this does seem to depend on the population being researched. In terms of accuracy criminal justice populations are often perceived to be the least precise (Magura & Kang, 1997), however McGregor & Makkai, (2003) showed that arrestees who use

illicit drugs and who have been in contact with the criminal justice system are more likely to accurately report their drug use than those who lead more law-abiding and socially acceptable lifestyles. Although the mixed findings do not help ascertain the accuracy of the research findings in this thesis, they have a potential impact on the self-reporting of drug use by the offenders and the non-offenders, therefore it needs to be acknowledged as a limitation of the research. Since using an objective measure of drug use (e.g. urinalysis) was not possible in this research, an attempt was made to try and improve the accuracy of self-reporting by having a number of questions in the questionnaire that cross checked previous responses to try and ensure consistency and truthfulness, but this could not be guaranteed. There is also evidence to suggest people are more honest and more willing to disclose inappropriate behaviour (Kiesler & Sproull, 1986; Paperny et al., 1990) or heavier consumption of alcohol (see Waterton & Duffy, 1984) via online surveys than if more traditional face-to-face methods are used. Since the methods of completing the questionnaires were substantially different between the drug using offenders (interviewer assisted and self-completion of paper-based questionnaires) and the non-offenders (online and self-completion of paper-based questionnaires) this must also be acknowledged as a limitation of this research.

- The cross sectional nature of the study meant that it was not possible to establish a causal relationship between the risk factors examined, drug use and delinquency.
- Another threat to the validity of the research focuses on the self-reported offending of the non-offenders. Criminological research has continually shown that officially recorded crime significantly underestimates the true extent of crime and many people offend but never come to the attention of the police (Farrington, 2001; Springer & Roberts, 2011). Therefore although the drug using offenders in this research had no official criminal record (e.g. no police

cautions and had never been charged with a criminal offence or been found not guilty if charged) their self-reported offending for, which they had never been caught, was not acknowledged in this thesis. Not acknowledging the self-reported offending of the non-offenders could distort the findings in relation to the comparisons being made between the drug using offenders and the drug using non-offenders and thus must be acknowledged as a limitation.

- **Researcher Focused Issues** - Every effort was undertaken to minimise researcher bias, which might influence and affect the overall results. The researcher was reflexive whilst conducting the research, which meant any areas of potential bias were identified quickly and eliminated. Contact with the participants was kept to a minimum; a research diary was kept throughout the research; and the researcher participated in regular supervision with her PhD supervisor. It is important to acknowledge the potential threats to validity associated with a female researching a male dominated environment. Whilst this was something the researcher needed to be aware of, it may also benefit the interview aspect of the research. Due to the sensitive topics covered male respondents may find it easier to discuss emotions, feelings and their life-histories with a female as opposed to a male researcher (Jupp, 2000). Although, research tends to suggest that the problems posed by poorly trained interviewers tend to be greater than the demographic characteristics of the interviewer (Jupp, 2000).
- **Data Collection Issues** – The study used two different forms of data collection for the two samples; mostly paper based interviewer assisted questionnaires for the drug using offenders and mostly online questionnaires for the drug using non-offenders, thus the following limitations of each method may impact on the findings of this research. Interview assisted questionnaires have their limitations when collecting data of a sensitive nature (i.e. respondents, might be less forthcoming with their answers or the interviewer might unwittingly influence their answers), but they also have a number of advantages that help

to improve the quality of the research. One of the potential benefits in relation to this research was all offenders wishing to take part in the research could irrespective of their literacy levels. It also meant the researcher could clarify the questions and make sure the respondents did not omit questions (a problem with the online questionnaires) leading to better quality data for the drug using offenders. Despite the scepticism surrounding online surveys, research suggests they are as good as the more traditional (pen and paper) methods (see Knapp & Kirk, 2003), are cheaper and can actually improve the quality of the data collected. Research suggests online questionnaires have less missing data, make long questionnaires seem shorter and are more convenient (i.e. they are constantly available, which means respondents can complete them in their own time, see Best et al. 2001; Stanton, 1998). These findings may have implications for the comparability of the data obtained from the two samples, since the offenders used paper-based questionnaires and the non-offenders used a combination of online and paper-based questionnaires. However in relation to this research the online questionnaires did not provide better quality data and often had more missing data than the paper and pencil questionnaires. Research also suggests they are good for conducting research on hard to reach groups and research of a sensitive nature (Coomber, 1997), which applied to this research on drug users, particularly in relation to the recreational drug using non-offenders who were particularly difficult to recruit.

4.9 Final Conclusion

The focus of this thesis was to compare drug using offenders with drug using non-offenders to see how they differed in relation to family, peer and school factors, as well as coping strategies to offer a greater insight into why some drug users commit crime, while others do not and thus elucidate on the drug crime relationship. By

examining a number of different risk factors known to underpin both drug use and criminality the research aimed to disentangle the perceived relationship between drug use and crime, in particular whether drug use caused crime. The findings from this research showed that once age, job/employment and drug use severity (recreational or problematic) were controlled for a high number of negative life events in childhood, an earlier age of onset for drug use, delinquent peers, poor school attainment, being excluded from school and avoidant behaviour coping predicted being a drug using offender and thus distinguished between drug users who went onto become offenders and those who did not. Only reasons for initiating drug use, including initiating drug use out of curiosity and to socialise with friends, predicted being a drug using non-offender. Thus this research shows that it is these variables that differentiate between drug users who are also offenders.

The risk factors that differentiated between the drug users that went on to become offenders and those who did not seem to be along the identified differences that exist between offenders and non-offenders regardless of drug use. This indicates these differences are attributable to the risk factors known to underpin offending and illustrates that the drug using offenders in this research seemed to be offenders who used drugs (Best et al. 2008; Nurco, 1998). The findings also suggest that it was these other factors not drug use, including severity of drug use (problematic and recreational) that caused their criminality. These findings are interesting since they seem to suggest that drug use and criminality are caused and influenced by different risk factors and both behaviours particularly at the outset, might be implemented as avoidant maladaptive coping strategies at an age when prosocial adaptive coping strategies are limited. Thus drug use and crime may constitute avoidant behavioural coping strategies implemented in the drug using offenders' lives to varying degrees to cope with their negative life events as well as the stresses and strains of everyday life rather than drug use leading to (and maybe causing) crime. For some people in certain situations/contexts both drugs and crime have become an integral aspect of the everyday lives, providing people not only with a means to survive in contemporary

society, but also as part of their leisure activities, identities and social relationships. Thus drug use and crime might be initiated and maintained over the life course to varying degrees to cope with the stresses strains and negative emotions encountered in everyday life, particularly for those with fewer coping strategies and resources (Agnew, 1991, 2001). As Hammersley (2008, p. 149) purported, for some drug use and crime have become 'socially functional'.

The findings of this thesis support previous research in the areas of life course criminology, coping, drug use and offending. The thesis has contributed to the dearth of knowledge differentiating between drug using offenders and drug using non-offenders, particularly here in the UK; it is also one of the only studies to examine and measure the coping strategies implemented by drug using offenders and drug using non-offenders in an attempt to use coping to disentangle the drug-crime relationship. As the differences between the drug using offenders and the drug using non-offenders are attributable to offending status, the findings from this thesis also contribute to the small amount of research that examines the notion that drugs and crime are caused by a third factor rather than existing in a causal relationship. Thus this research shows that rather than drug use causing crime, both behaviours may be caused by a number of third factors and both behaviours are only implemented due to poor avoidant coping; something that is overlooked by much of the drug-crime research as well as drug policy and treatment.

To conclude the findings from this research suggest that there are significant differences between drug users that are offenders and drug users that are not offenders, but these differences are attributable to the risk factors known to underpin offending irrespective of drug use. The absence of these risk factors (high number of negative life events in childhood, an earlier age of onset for drug use, delinquent peers, poor school attainment, being excluded from school and avoidant behaviour coping) may explain why not all drug users partake in crime; because it is these risk factors that lead to offending not drug use. . Thus these findings illustrate the importance of understanding these differences if drug policy and both drug treatment

and offender behaviour programmes are to be successful. Unless drug policy and drug treatment start to acknowledge that drugs and crime are caused by other factors and thus are more likely to coexist in the majority of drug using offender's lives rather than drug use causing crime it is unlikely that either will successfully reduce drug use or criminality now or in the future.

Appendix A: Poster Used to Recruit Participants in Prison



Drug Users Wanted (Recreational & Problematic Users) **To Volunteer For A Research Study**

My name is Tammy Ayres from the University of Leicester and I am conducting research on the relationship between drug use and crime.

The research provides drug users with an opportunity to answer a questionnaire and have their say on the subject.

The questionnaire takes approximately 35-45 minutes to complete.

If you are a **drug user without a criminal record** (i.e. no police cautions, have never been charged with a criminal offence or been found not guilty if charged) and would like to take part please use the following link:

<http://www.zoomerang.com/Survey/WEB22BQKFUCB58>

If you are a **drug user with a criminal record** and would like to take part, please use the following link:

<http://www.zoomerang.com/Survey/WEB22CJ53PXHUN/>

Confidentiality and anonymity is guaranteed!

Alternatively, you can also opt to undertake this questionnaire with the help of a researcher who will assist you in its administration. If this is your preferred choice or you have any questions, please contact me directly on tca2@le.ac.uk

Appendix B: Prison Sign Up Sheet



Drug Users Wanted

(Recreational & Problematic Users)

To Volunteer For A Research Study

My name is Tammy Ayres from the University of Leicester and I am conducting research on the relationship between drug use and crime.

The research provides drug users with an opportunity to answer a questionnaire and have their say on the subject. Your opinion and perspective is important.

The research aims to develop a better understanding of the role drugs play in people's lives. Whether you use drugs daily or occasionally (i.e. smoke cannabis, snort cocaine or inject heroin) please volunteer to take part in this study.

The questionnaire takes approximately 45 minutes to complete.

All questionnaires and information disclosed will be kept confidential and anonymised.

If you are interested in taking part please contact the CARATS team to register your interest.

If you are interested in taking part, please complete the following form and return it to one of the CARATS team.

Name: _____

Prison Number: _____

Which wing are you on: _____

Thank you!

Appendix C: Information Sheet

Drugs and Crime: The True Relationship

PARTICIPANT INFORMATION SHEET

Firstly I would like to thank you for agreeing to take part in this research.

This information sheet has been created to help guide you through completing the questionnaire, which looks at drug use. Please read the information below very carefully.

- **Before starting the questionnaire you will need to read and sign the two participant consent forms. One is for you to keep (OFFENDER COPY) the other should be placed in the envelope provided along with your completed questionnaire when you have finished.**
- **The questionnaire should take about 45-50 minutes to complete and has been split into 6 sections:**

Part A – asks questions about your background (family, school), drug use and offending histories (Part A takes about 10 minutes to complete).

Part B – looks at your parents and how they treated you as a child (Part B takes 10 minutes to complete).

Part C – looks at how you manage problems (Part C takes 15 minutes to complete).

Part D – asks questions about events you experienced in your childhood (Part D takes 10 minutes to complete).

Part E – asks some general questions about you as a person (Part E takes 5 minutes to complete).

Part F – asks some general questions about drugs in prison and how you think drug treatment could be improved.

- **Please make sure you complete all 6 sections of the questionnaire.**
- **When you have finished please put the RESEARCHER COPY of the participant consent form in the envelope provided along with your completed questionnaire.**
- **Seal the envelope and hand it back to the CARATS Team.**

Appendix D: Participant Consent Form

Participant Consent Form

BACKGROUND INFORMATION

Title: Drugs and Crime: The True Relationship

Researchers: My name is Tammy Ayres from the University of Leicester, School of Psychology.

Purpose of data collection: Doctoral Research

Details of Participation: The purpose of this research is to help us to understand the link between drug use and offending, by comparing drug users who are offenders with those who are not offenders. The aim is to help develop a better understanding of the role drugs play in people's lives. Questions will be asked regarding your childhood, family and drug use.

This questionnaire is made up of a series of tick box and circle questions making it quick and easy to answer. It will take approximately **45 minutes** to complete.

CONSENT STATEMENT

- 1) I understand that my participation is voluntary and that I may withdraw from the research at any time, up until July 2013, by contacting the researcher and citing my individual ID code. If I withdraw I understand my data will be destroyed/deleted.
- 2) I am aware of what my participation will involve.
- 3) My responses are to be held confidentially and only Tammy Ayres and her supervisor (Dr Emma Palmer) will have access to them.
- 4) My data will be kept in a locked filing cabinet for a period of at least five years after the appearance of any associated publications. Any aggregate data (e.g. spreadsheets) will be kept in password protected electronic form for at least five years after which time they will be deleted.
- 5) My name and other identifying details will not be shared with anyone.
- 6) I have been provided with a point of contact in case of psychological distress.
- 7) The overall findings will be used for a PhD thesis but may also be submitted for publication in a scientific journal, or presented at scientific conferences.
- 8) This study will take approximately 3 years to complete.
- 9) I will be able to obtain general information about the results if I give the researcher my details now (see below) or contact her (tca2@le.ac.uk) after September 2013.
- 10) All personal data will be processed in accordance with the UK Data Protection Act.

11) I understand if I disclose anything that indicates that I am about to harm myself, a member of staff or a fellow inmate that the researcher has an obligation to inform a senior member of staff.

I am giving my consent for my data to be used for the outlined purposes of the present study.

All questions that I have about the research have been satisfactorily answered.

I agree to participate. Participant's signature:

Participant's name (please print): _____ Date: _____

If you would like to receive a summary of the results, please write your email address:

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