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THE RELATIONSHIP OF OFFENDING STYLE TO PSYCHOLOGICAL AND SOCIAL RISK FACTORS IN A SAMPLE OF ADOLESCENT MALES

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ABSTRACT

Research has indicated that life-course persistent offenders typically vary their offending style, following a criminal career progression from co to solo offending. Few studies have investigated the offenders who contemporaneously mix their style of offending. A sample of 1047 male adolescent offenders from the Pathways to Desistance study was investigated over a seven-year period. Participants were identified as solo, co or contemporaneous mixed style (CMS) offenders for each wave of data and one-way between groups analysis of variance was conducted to examine variations between the different offending styles in terms of offending frequencies, exposure to violence, peer antisocial behaviour and influence, resistance to peer influence, impulse control, and psychopathy. CMS offenders were found to consistently report significantly higher rates of offending and present significantly higher negative risk factors and lower protective risk factors than solo and co offenders for the duration of the study. A Multinomial Logistic Regression was used to investigate predictors of offending style with CMS as the reference category. Higher levels of exposure to violence and peer antisocial behaviour and lower levels of impulse control predicted membership of the CMS group for the first part of the study when compared with co-offenders; and higher levels of exposure to violence and peer antisocial behaviour continued to predict CMS offending when compared to solo offenders until the end of the study.

1 OFFENDING STYLES

Research has demonstrated that persistent long-term offenders vary their style, moving from co to solo offending as they mature (Goldweber, Dmitrieva, Cauffman, Piquero & Steinberg, 2011; McCord & Conway, 2002; Moffit, 1993; Reiss, 1988; Reiss & Farrington, 1991; Weerman, 2003; Zimring, 1981). Although co to solo offending is cited as a key difference between adolescent limited and extended criminal careers, more recent studies using large police datasets have cast doubt on this traditional criminal career progression (Anderson & Felson, 2009 and 2012). Data reported by the Canadian police demonstrated that co-offending rates were lower for juveniles than previous studies had suggested (Carrington, 2002). These findings were supported by analysis of equivalent data in the USA, which indicated that solo offending was common for juvenile offenders (Stolzenberg and D'Alessi, 2008, 2016).

Co-offenders fulfil different roles, some of which are suggestive of a hierarchy, with instigators and recruiters (Warr, 2002). For example, a study of arsonists indicated that orchestration involved specific roles for those involved in both the planning and execution of the offence (Uhnou, 2015). It has also been suggested that there is a relationship between the roles that individuals play in co-offending and frequency of criminal acts (Carrington, 2009), with recruiters being persistent, high rate offenders, who sometimes offend alone (Reiss, 1988). Moffitt (1993) originally proposed that the criminal career trajectories of recruiters and joiners were different, placing the former into the category of "life-course persistent offenders", and the latter as "adolescent limited". However, some joiners have been found to be persistent and high-level offenders (Reiss, 1988), and individuals have also been found to switch their roles (Warr, 1996). Perhaps not surprisingly, flexibility has been found amongst long term serious offenders who are prepared to offend both with others and alone (McCord & Conway, 2002; Reiss, 1988; Reiss & Farrington, 1991).

2 CONTEMPORANEOUS MIXED STYLE (CMS) OFFENDING

It is recognised that most individuals who have a long history of crime will offend alone and with others over their life course (Reiss 1988; Reiss & Farrington, 1991; McCord and Conway 2002). However, the classification of mixed style offender is typically applied and investigated longitudinally rather than as a simultaneous offending style over a shorter period (Goldweber, Dmitrieva, Cauffman, Piquero, & Steinberg 2011; Piquero, Farrington, & Blumstein 2003; Reiss 1988). For those who are versatile in their offending and able to adapt their style in response to the crime category or situation, the classification of contemporaneous mixed style (CMS) offender is appropriate. There are relatively few studies that have recognised this group, even though the phenomenon has been identified. Reiss and Farrington (1991) found that neither solo nor co-offending exclusively was common for any age group. This finding was supported more broadly in a sample of both adults and juveniles by Hodgson (2007), who found that offenders who committed crimes both alone and with others were the smallest, but most prolific, group. Research using the same data as the present study found that offenders who reported mixed style offending over a three-year period committed significantly more offences than their solo and co-offending counterparts (Goldweber et al., 2011). Other research has found that individuals who adopted a mixed style over their lifecourse had the shortest periods of time between their offences (Falco Metcalfe and Baker, 2014). The authors also demonstrated that there were longer periods between offences for mixed style offenders after they had co-offended, bringing into question the criminogenic risk posed by temporary groups. It is possible that CMS offenders are equivalent to instigators rather than followers (Van Mastrigt & Farrington, 2011; Warr, 1996), hence requiring both the skills to act autonomously but also to recruit and accompany others.

3 OFFENDING STYLE AND CRIME

Most studies have found that those who engage in delinquent or criminal behaviour in the company of others are more prolific than those who act alone (Andresen & Felson, 2012). This includes higher levels of violent crimes (Alarid, Burton, & Hochstetler, 2009; Conway & McCord, 2002; McCord & Conway, 2002; Reiss, 1980; Reiss & Farrington, 1991; Sarnecki, 2001). Co-offending is also associated with certain categories of crime. A study that used English police data found that group offending was common for: affray, burglary, robbery, vehicle taking, arson without the intention of endangering life, and drug use (Hodgson, 2007). This is one of the few studies to recognise CMS offenders, and it found that this group was the smallest but committed the most crimes: 65% of the sample offended alone; 18% only offended with others; and 17% were found to do both, but were responsible for an average of 8.5 offenses compared to 1.8 for solo and 1.4 for co-offenders. These findings were supported by self-reported data from the first phase of a longitudinal study: 44% of participants reported offending both alone and with others, 37% offended only with others, and 19% offended alone (Goldweber et al., 2011). The later phases of analyses revealed that, as they aged, 83% followed an increasingly solo trajectory and 17% of the sample demonstrated a mixed-style trajectory.

4 SOCIAL AND PSYCHOLOGICAL RISKS FACTORS

4.1 Exposure to violence

Research has demonstrated that there is a relationship between violent crime and co-offending (Carrington, 2002; Hodgson, 2007). Qualitative research has found that adolescents and young adults were more likely to commit violent crime when in the company of others (Alarid et al., 2009). The higher risk may also extend beyond the criminal act. In comparing

two groups of randomly sampled solo and co youth offenders, Conway & McCord (2002) found that those who committed their first offence with violent accomplices were more likely to continue to use violence in their offending. Thus, offending style may increase the risk of violent offending.

Violent victimisation is also associated with an increased risk of violent offending. Higher levels of exposure to community violence have been associated with violent and aggressive offending (Baskin & Sommers, 2014). This study found a relationship between violent victimisation and violent criminal trajectories, confirming the overlap between victim and offender status. In addition, a subsequent analysis of the same data concluded found that individuals with higher levels of psychopathic traits normalised violent behaviour and processed exposure to violence differently (Baskin-Sommers & Baskin, 2016). These findings suggest that certain offenders may present a higher risk of violent offending.

4.2 Social risk factors

The influence of peers during adolescence is seen to be developmentally normal and is often cited to explain an increase in offending amongst early and mid-adolescents (Warr, 2002). Some researchers have suggested that peer influence is greater for those who begin offending during their adolescence, because their reasons for committing crimes can be motivated by social status (Weerman, 2003). It is important, when considering the effect of delinquent peers, to distinguish between persistent and age-specific offenders, motivation for offending, and category of offence (McGloin & Povitsky Stickle, 2011). Theories that associate low self-control with offending (Gottfredson & Hirschi, 1990) are also relevant to an individual's ability to resist the influence of delinquent peers (McGloin & Shermer, 2009; Wright, Caspi & Moffitt, 2001).

4.3 Impulse and aggression control

Low psychosocial maturity is a developmental risk factor that typically decreases with age; it includes three components: Temperance (impulse control and suppression of aggression); perspective (consideration of others and future orientation); and responsibility, or self-control (Monahan, Steinberg, Cauffman & Mulvey, 2013; Steinberg & Cauffman, 1996). Low impulse control has been associated with increased group offending (Gottfredson & Hirschi, 1990; Hirschi & Gottfredson, 2000; McGloin, Sullivan, Piquero & Bacon, 2008), and it has been suggested that individuals with poor self-control may be drawn to others who share the same deficit (McGloin & O'Neill Shermer, 2009). Only one, aforementioned, study (Goldweber et al., 2011) has compared levels of impulse control between individuals who engage in mixed style and solo offending. The results of this research indicated that late adolescents who engaged in group offending showed higher levels of criminality and lower levels of temperance, the ability to control impulses and suppress aggression. Using trajectory analysis on the same data, other researchers found that less mature individuals are likely to be persistent and offend more frequently (Steinberg, Cauffman & Monahan, 2015).

Psychosocial maturation is a dynamic risk factor for adolescents; and its increase has been associated with desistance from crime for adolescent-limited offenders (Moffitt, 1993). It is therefore valuable to consider whether the level of risk changes over time. Some individuals do not mature psychosocially until their mid-twenties (Steinberg, 2010); a finding supported by research using Pathways to Desistance data, which associated maturation with offending desistance (Monahan et al., 2013).

Few researchers have investigated whether there are differences between the psychosocial characteristics of solo and co-offenders. One exception is the aforementioned study by Goldweber and colleagues (2011), who investigated the individual and developmental differences between offenders who adopted either style over a three-year

period. The solo offenders in their sample displayed lower psychosocial and psychological risk factors than their mixed-style offending counterparts.

4.4 Psychopathy

Longitudinal research has shown that solo offenders display fewer psychopathic traits than co and mixed style offenders as they age (Goldweber et al., 2011). Also relevant is research that has found psychopathic traits to be a dynamic risk factor for adolescents (Cauffman, Skeem, Dmitrieva, & Cavanagh, 2016). Researchers found a correlation between higher psychopathic levels and offending frequencies in a sample of adolescent offenders (Dyck, Campbell, Schmidt, & Wershler, 2013); however, they also demonstrated that offending frequencies for this group decreased with age. This would suggest that the influence of psychopathy is age specific.

Therefore, understanding the psychological and social traits that can be associated with CMS offending is paramount when considering interventions; both in terms of their form and timing. By considering the relationship between time-specific offending style and frequency, research has the potential to inform targeted interventions for youth who offend. Although prior research has identified the existence of instigators and followers (Moffitt, 1993; Reiss, 1988), these two categories are not always apparent from police records or data. CMS offenders have the ability to initiate crimes and to offend with others and are an easier group to identify from criminal justice data. Psychopathy is associated with disengagement from behavioural programmes for adolescent offenders and requires intensive treatment for successful intervention (Caldwell, Skeem, Salekin, & Van Rybroek, 2006).

3 PRESENT STUDY

Research that has recognised the category of mixed style offender for a discreet period has found that flexibility of style is associated with higher rates of crime both for self-reported (Goldweber et al., 2011) and police data (Hodgson, 2007). The present study utilises the

same data as Goldweber and colleagues (2011) from the Pathways to Desistance Study. A key difference in the approach is that the previous study allocated style membership over a 36-month period; furthermore, the study followed individual style trajectories rather than investigating style at distinct points in time (Goldweber et al., 2011). The present study considered offending style for 6-month periods up to 36 months, and then at yearly intervals until 84 months. Since CMS offenders commit significantly more crimes than their solo or co-offending counterparts (Hodgson, 2007) it is unclear whether this group presents significantly different psychological and social characteristics when compared to solo or co-offenders. The objectives of the present study are as follows:

1. To investigate variance in the number of self-reported total offences for solo, co and CMS offenders, and to explore whether patterns change as the sample aged.
2. To investigate variance for self-reported aggressive offending according to style.
3. To establish whether CMS offenders present significantly higher scores for psychological and social risk factors that are associated with offending.
4. To investigate which risk factors predict CMS offending.
5. To consider any age-specific variation in the psychological and social risk factor profiles of CMS offenders.

4 METHOD

4.1 Sample demographics

The sample of 1,047 was male, with 50.4% ($n = 528$) interviewed in Phoenix Arizona and 49.6% ($n = 519$) in Philadelphia. The largest ethnic/racialised group was African American

(40.7%, $n = 426$), followed by Hispanic (35%, $n = 366$), and White (20.1%, $n = 20.1$). The smallest group was classified as 'Other' (4.3%, $n = 45$). Of the sample 94.2% ($n = 986$) were born in the USA and 5.8% ($n = 61$) listed another country as their birthplace. The mean age of the sample at the 6 month interview was 16.59 ($SD = 1.15$, range between 14 and 20 years) and 23.06 ($SD = 1.17$, range between 20 and 26 years) at the final interview of 84 months (Table 1).

4.2 Measures

An adapted self-reported measure was used for offending frequency (Huizinga, Esbensen, & Weiher 1991). A previous study using the Pathways to Desistance dataset found that self-reported offending was correlated with official records (Brame, Fagan, Piquero, Schubert, & Steinberg 2004). Twenty criminal acts were included for total offending: Broke into a car to steal; bought or received stolen property; used a check/credit card illegally; shoplifted; stole a car or motorcycle; sold marijuana; sold other drugs; been paid for sex; took by force with a weapon and took by force without a weapon; shot someone and hit; shot at someone, no hit; beat someone causing serious injury; in a fight; beat someone up as part of a gang; carried a gun; destroyed or damaged property; set fire to a building or vacant lot. The additional offences of joyriding and broke into a car to steal were added for 12 to 84 months. Aggressive offending included the following: Destroyed or damaged property; set fire to a building or vacant lot; shot someone and hit; shot at someone, no hit; beat someone causing serious injury; in a fight; beat someone up as part of a gang; carried a gun; took by force with a weapon; and took by force without a weapon. Participants were also asked if they were with anybody when the last committed the offence. Exposure to violence was investigated, using the *Exposure to Violence Inventory* (Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998). The present study used a combined score for violence experienced as a victim and

witnessed to investigate the overall impact of violence on membership of each offending style group.

The influence of peer antisocial behaviour and antisocial influence was investigated using *The Peer Delinquent Behaviour* measure (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994), for antisocial behaviour and antisocial influence of peers. Alongside these measures, *Resistance to Peer Influence* (Steinberg, 2000), which is the degree of autonomy that adolescents have when they are with their peers, was also explored.

The study investigated psychological development using the Temperance scale from the *Weinberger Adjustment Inventory* (Weinberger & Schwartz, 1990). Temperance is a combined score of two separate scales: Impulse Control and Suppression of Aggression. Higher scores on each of the subscales indicates more positive behaviour (for example greater temperance and greater consideration for others). The total scores for psychopathy were investigated using the *Youth Psychopathic Traits Inventory* (YPI; Andershed, Kerr, Stattin, & Levander, 2002). For the purposes of the present study the total scores of the three dimensions of psychopathy: Grandiose Manipulative Dimension, Callous Unemotional Dimension, and Impulsive Irresponsible Dimension was reported.

Further information regarding the study can be found at: Mulvey, Edward P. Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. ICPSR29961-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2012-08-20.doi:10.3886/ICPSR29961.v1.

4.3 Procedure

The Pathways to Desistance study was initiated with baseline interviews being conducted between November 2000 and January 2003 and subsequent interviews every 6 months until

36 months and then every 12 months until 84 months after the baseline. The aim of the original study was to investigate the transition from adolescence to adulthood for young offenders who were drawn from courts in Maricopa County, Arizona or Philadelphia County, Pennsylvania (Mulvey, 2004; Mulvey & Schubert, 2012). Criteria for involvement in the study stipulated that participants should be between 14 and 17 years old at the time of their first offence, and that they must have been found guilty of a serious offence. The procedure for the study is described by Mulvey and Schubert (2012) and Schubert et al. (2004).

4.4 Data analysis

For the purposes of the present study a new variable of offending style was created for each offence with the categories of solo, co, mixed (CMS), and no offense reported. CMS offending was coded when participants reported being both alone and in the presence of others across their total reported offending for each period between interviews. The data was abnormally distributed, and it was decided to retain outliers in the analysis because they are typical of this type of data and in order to maintain the integrity of the study (Bakker & Wicherts, 2014). The number of individual offence counts were too low to investigate each offence in isolation, so a frequency score (total number of criminal acts) was obtained for total offending and then aggressive offences. A one-way between groups analysis of variance was conducted for all three categories to explore the relationship between offending style for each wave of data on offending frequencies. Based on Levene's test, equal variance was not assumed for any of the waves of data; Welch's F was reported, and the Games-Howell test was selected for post-hoc comparisons, in recognition of unequal sample sizes and variance.

A one-way between groups analysis of variance was conducted for all three categories of style to investigate: exposure to violence, aggression and impulse control; resistance to peer influence; peer antisocial behaviour and influence; and psychopathy. Based on Levene's

test, where equal variance was assumed the Tukey HSD post-hoc comparison was selected; where equal variance was not assumed Welch's F was reported, and the Games-Howell test was selected for post-hoc comparisons, in recognition of unequal sample sizes and variance. ANOVA was selected for the analysis because it is a robust test for abnormally distributed data (Blanca, Alarcó, Arnau, Bono, and Bendayan 2017). In order to investigate which risk factors predicted offending style a Multinomial Logistic Regression was used to analyse predictors for an unordered group classification for solo, co and CMS offenders. The reference category was CMS offenders; each of the other two categories were compared to this group. Four waves of data were selected to represent a substantive progression in the mean age of the sample.

5 RESULTS

5.1 Offending style and frequencies

[INSERT TABLES 1-3 ABOUT HERE]

Although the majority of the sample followed the traditional criminal progression from co to solo offending from the 18-month point of the study, three separate profiles of offender continued from late adolescence to early adulthood (Table 1). An anomaly was found at the 6-month wave, when the mean age was 16.59 (SD = 1.15, range between 14 and 20 years); 38.7% ($N = 239$) of the sample reported CMS offending. The total offending frequencies for solo, co and CMS offenders were investigated. CMS offenders reported committing significantly more offences than their solo counterparts for all waves of data, and significantly more than those who reported only co-offending for all waves of data except for 24-months (Table 2). No consistent pattern of variance was found for aggressive offending (Table 3). CMS offenders formed only 22.7% and 19 % of the entire sample at the 6- and 12-

month interviews, but they reported significantly higher levels of aggressive offending than both solo and co offenders.

5.2 Social and Psychological Risk Factors

[INSERT TABLES 4 & 5 ABOUT HERE]

CMS offenders witnessed and were victims of significantly higher levels of violence than both solo and co offenders for all waves of the study (Table 4). Variance between solo and co offenders was only found at 6- and 12-months, with co-offenders reporting higher levels of exposure to violence. CMS offenders were also found to have significantly higher levels of peer antisocial behaviour and influence than both solo and co offenders for the duration of the study. No consistent patterns of variance were found between solo and co offenders. When resistance to peer influence was tested, CMS offenders only scored significantly higher than co-offenders at 48-months. These findings indicate that although the social risk of antisocial peers is greater for CMS their levels of resistance do not differ significantly from their solo or co-offending counterparts. The investigation of individual differences revealed a pattern of variance for CMS offenders. The CMS group showed significantly lower levels of aggression and impulse control than both solo and co offenders for the duration of the study and consistently higher levels of psychopathic traits. No variance was found between solo and co offenders for any waves of data for either aggression control or psychopathic traits, indicating that the profiles of CMS offenders are different than those who offend in a single style.

A Multinomial Logistic Regression was used to analyse predictors for an unordered group classification for solo, co and CMS offenders. The reference category was CMS offenders; each of the other two categories were compared to this group. The first column in

Table 5 has the outcome of co-offenders compared to CMS offenders (reference category). The model fits were significant for all waves that were tested. The results indicated that psychopathic traits have no significant effect on style of offending. Higher levels of exposure to violence was a predictor of CMS offending for the first half of the study, up to 48 months. However, no significant variance between CMS and co-offenders was found for aggressive offending frequency after 12 months (Table 3). This suggests that the source of violence is not necessarily involvement in violent offending. Lower levels of impulse control predicted CMS offending at 24 months and higher levels of peer antisocial influence was a significant predictor at 24 and 48 months. As the sample aged and progressed into their twenties, there were no significant predictors to differentiate between CMS offenders and those who reported only offending with others. The second column in Table 5 has the outcome for solo offenders compared to CMS offenders. For the first part of the study, similar results were found to the comparison between CMS and co-offenders. The main difference for solo offenders was that they continued to have lower levels of exposure to violence and peer antisocial behaviour as the sample aged.

6 DISCUSSION

Offending styles

Prior research suggested that long-term persistent offenders varied their style as they matured, moving from co to solo offenders (Goldweber et al., 2011; McCord & Conway, 2002; Moffit, 1993; Reiss, 1986 and 1988; Reiss & Farrington, 1991; Weerman, 2003; Zimring, 1981). However, a sizeable number of young people in the present sample offended alone, which accords with a study using police data for juvenile offenders in the USA (Stolzenberg & D'Alessi, 2008 and 2016). CMS offenders comprised the largest proportion of the sample at the start of the study and the smallest for the last wave of data (Table 1). It is

possible that a CMS offending style represents part of the process of progression to solo offending, particularly for acquisitive crimes because of the financial rewards. The pattern of offending style for aggressive offending supports this (Table 1); CMS offenders comprised the smallest proportion for all waves of data. The highest reported percentage was for co-offending, which concurs with prior research on the association between group offending and violent crimes (Alarid et al., 2009; Conway & McCord, 2002; McCord & Conway, 2002; Reiss, 1980; Reiss & Farrington, 1991; Sarnecki, 2001). The only exception to this finding was at 36 months, when 44.6% ($N = 129$) reported offending alone; this can be explained by the inclusion of aggressive income-generating crimes.

Offending frequencies

The analysis confirmed that CMS offending increases criminogenic risk and is identifiable earlier in offending careers than had previously been suggested (Moffit, 1993; Reiss, 1986 and 1988; Reiss & Farrington, 1991; Weerman, 2003; Zimring, 1981). Only at the 12-month interview was any significant variance found between solo and co offenders, suggesting that the inclusion of a third category of CMS changes the perception of risk associated with those who only co-offend (Andresen & Felson, 2012). These findings support those of one of the few studies to investigate CMS offenders (Hodgson, 2007). Variance for aggressive offending frequency was limited to the first half of the study, suggesting that although co-offending is associated with violence (Alarid et al., 2009; Conway & McCord, 2002; McCord & Conway, 2002; Reiss, 1980; Reiss & Farrington, 1991; Sarnecki, 2001) CMS offenders present a significantly greater risk than co-offenders during late adolescence. The concentration of variance during the earlier waves of the study may also be explained by a more substantive decrease in peer antisocial behaviour and influence, and a greater increase in aggression control for solo and co offenders as the sample aged.

Social and psychological traits

Solo offenders experienced lower levels of exposure to violence than their co-offending counterparts, which is consistent with the literature (Carrington, 2002). However, significant variance was only reported at 6- and 12- months (Table 4). CMS offenders demonstrated a pattern of significantly higher levels of exposure to violence for the duration of the study; a risk factor that has been associated with violent offending (Alarid, et al., 2009; Conway & McCord, 2002). Since their aggressive offending was only significantly higher for the first part of the study, these findings suggest that there is a confounding variable. Prior research using the same data (Baskin-Sommers & Baskin, 2016) demonstrated that higher psychopathic traits mediated the relationship between exposure to violence and violent offending. The present study supported this finding: CMS offenders consistently displayed higher levels of psychopathy for the duration of the study (Table 4). The three dimensions of psychopathy (grandiose manipulative, callous and unemotional, and impulsive and irresponsible) are traits that could be associated with the instigation of offences and require consideration for the design of offender treatment programmes (Caldwell et al., 2006). This was supported from the half-way point of the study, when solo offenders presented higher mean scores for psychopathic traits than the co-offending group, although not significantly so (Table 4). This finding did not accord with a previous study using the same data set (Goldweber et al., 2011), which concluded that increasingly solo offenders presented fewer psychopathic traits than those who only offended with others. The reason for this discrepancy can be explained by the methodology; the authors concentrated their investigation on exclusively and increasingly solo offenders rather than the CMS group, and their study followed individual trajectories rather than investigating groups across time.

Aggression and impulse controls were also significantly lower for CMS offenders for the entire study. Effect sizes were medium from 18 to 48 months, suggesting that lower impulse control presents a heightened risk factor during late adolescence and early adulthood. These findings may explain the significantly higher offending frequencies for CMS offenders; they also concur with prior research, which has demonstrated that lower levels of temperance are associated with higher levels of offending (Steinberg et al., 2015). However, the findings do not support the association between low impulse control and increased group offending (Hirschi & Gottfredson 2000; McGloin et al., 2008). The reason for the discrepancy is likely on account of the omission of a category of CMS offenders in previous samples, and demonstrates the importance of distinguishing between those who are restricted to offending with others and the CMS group.

It has been suggested that resistance to peer influence also relates to impulse control, as evidenced by the phenomenon of individuals with low levels of control being drawn towards similar peers (McGloin, et al., 2009). Resistance to peer influence was only significantly lower for CMS offenders at 48-months; however, CMS offenders scored significantly and consistently higher than both solo and co offenders for both antisocial peer behaviour and influence (Table 4). The findings for resistance to peer influence support the notion that although CMS offenders have more delinquent peers in their social networks, they may not necessarily be influenced by them regarding their own offending. If CMS offenders are versatile and not dependent upon others to offend, the degree of influence that peers have should - theoretically - be inconsequential. Nevertheless, access to networks of delinquent peers is necessary for successful co-offending and peer delinquency is associated with increased offending (Warr, 2002). No pattern of significant variance for peer antisocial behaviour was found between solo and co offenders. These findings suggest that those who report offending in a consistent and single style present similar levels of social risk. Greater

variance during the earlier stages of adolescence accords with the academic literature on the influence of delinquent peers upon offending groups (Warr, 2002). Overall the results demonstrate overwhelmingly that CMS offenders are exposed to much higher social risks and present a distinct group.

Although consistent variance was found between CMS and single style offenders, the results for the Multinomial Logistic Regression with CMS as a reference category were inconsistent over the duration of the study (Table 5). Two notable absences were psychopathy and antisocial peer influence; resistance to peer influence was excluded from the model on account of the lack of variance in the previous analyses. Although psychopathy is associated with higher offending frequencies (Dyck et al., 2013) and variance between CMS and single style offenders was found for the duration of the present study, CMS offenders did not report significantly different levels of psychopathic traits at any point in the regression analyses. The discrepancy can be explained by the dynamic nature of psychopathy during adolescence (Cauuffman et al., 2016) and may also represent variation of offending style for individuals with higher psychopathic traits. The only psychological risk factor where CMS offenders reported significantly higher levels was impulse control. CMS offenders did report significantly lower levels of impulse and aggression control than single style offenders at 24 months, and than solo offenders at 48 months. The mean ages at these points were 18.05 and 20.06 years; the findings therefore accord with prior research, which has indicated that impulse control can continue to develop into the early 20s (Monahan et al., 2013; Steinberg, 2010). Aggression control mechanisms are therefore an important element of inclusion for the design of adolescent and young adult interventions for violent offending.

Exposure to violence was the most consistent predictor for CMS offending (Table 5). Although this of little surprise when compared to solo offenders, prior research has reported increased violent offending for groups (Alarid et al., 2009). Peer antisocial behaviour

followed a similar pattern for both solo and co offenders, suggesting a social element to the risk. As the sample matured, higher levels of exposure to violence and peer antisocial behaviour continued to predict CMS offenders when compared to solo, but no significant difference was found with the co offending group. These results build on prior research, which investigated the profiles associated with mid-adolescents in the same sample (Goldweber et al., 2011) and suggest that, as offenders age, it is an increase in social rather than psychological factors that predict offending style. This finding is important for offender management and intervention; although juvenile offending interventions often address the risk of antisocial peers, adult interventions typically concentrate on changing behaviour and attitude.

Implications of the research

A key finding from research was that CMS offenders demonstrated significantly higher levels of offending for the duration of the study and present an increased criminogenic risk when compared to those who only offend in one style. Identifying CMS offenders should be relatively straightforward from either the self-reported or official offending records. The study also demonstrated that this group can be identified from mid adolescence; earlier than had been previously thought. At present this risk factor is not reported by police forces, nor is it recorded by those who work in youth or juvenile justice; by establishing offending style practitioners should be able to identify and intervene with this high-risk group.

Since CMS offenders present a different psychological and social profile than their solo and co offending counterparts, targeted interventions to address peer delinquency, impulse control, and the effects of an increased exposure to violence should be considered. The impact of higher levels of psychopathic traits should also be recognised in the design of programmes, especially those seeking to address victim awareness and for the evaluation of

change. Furthermore, heightened levels of aggression and a lack of impulse control may override behavioural programmes seeking to address violent behaviour. Attention should therefore be given to coping mechanisms for individuals who find themselves in a situation that triggers their impulsive or aggressive behaviour.

6.1 Limitations and Future Research

Limitations

A select number of variables were considered in the present study. Offending frequency data were abnormally distributed, which restricted the method of analysis. Bonferroni correction was used in recognition of multiple tests. Self-reported offending can be exaggerated or minimised; however, where possible offending was checked by interview and comparison with official records. A previous study using the Pathways to Desistance dataset found that self-reported offending was correlated with official records (Brame et al., 2004).

Categorisation of offending style was self-reported by participants, who were asked if they were accompanied when they last committed each offence. This is an accepted methodology (Goldweber et al., 2011) and this data is exceptional in enabling the investigation of CMS offenders. However, it is necessary to acknowledge the limitations of self-reporting style over a one-year period, and that some of the higher frequency offenders may not have had accurate recall.

Another limitation was that where data was missing for any of the offence categories the participant was removed from the analysis, thus restricting the sample size. The sample were also established offenders, having been convicted of at least one felony offence before the start of the data collection; it is unclear whether the findings can be extrapolated to young people who are involved in delinquency rather than offending. It should also be noted that the present sample was drawn from two U.S. cities and comprised a majority of African

Caribbean and Hispanic youth. As with all quantitative data sets, the present study lacks qualitative narratives that could explain an individual's decision to adopt a particular offending style, and their role within a delinquent group.

Future research

With interventions and the management of offenders in mind, future studies should investigate whether risk factors associated with this group are static or dynamic. Other sets of variables, such as Adverse Childhood Experiences, could be explored in order to understand the relationship between early risk and CMS offending. The addition of qualitative research could also greatly enhance our understanding of why some offenders contemporaneously mix their style of offending.

6.2 Conclusion

A consistent pattern of significant variance was found between CMS offenders and those who maintained a single style of offending over a six to twelve-month period. The study demonstrated that CMS offenders consistently reported higher total offending, scored significantly higher on negative psychological and social traits and significantly lower for protective factors. No consistent patterns of significant variance were found between solo and co offenders, which demonstrates the importance of recognising CMS offending as a distinct group. The study also indicates that this group may be identifiable sooner previously suggested. Offending interventions should focus on lower levels of impulse control for CMS offenders in mid adolescence and higher levels of peer antisocial behaviour and exposure to violence from mid adolescence to early adulthood.

References

- Mulvey EP, (2012) Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. Ann Arbor, MI: Inter-University Consortium for Political and Social Research [Distributor], 2013-01-07.
<http://doi.org/10.3886/ICPSR29961.v2>
- Alarid, L.F., Burton, V.S., & Hochstetler, A.L. (2009). Group and solo robberies: Do accomplices shape criminal form? *Journal of Criminal Justice*, 37(1), 1-9.
doi: <https://doi.org/10.1016/j.jcrimjus.2008.12.001>
- Andresen, M.A., & Felson, M. (2009). The impact of co-offending. *The British Journal of Criminology*, 50(1), 66-81. doi:10.1093/bjc/azp043
- Andresen, M. A., & Felson, M. (2012). Co-offending and the diversification of crime types. *International Journal of Offender Therapy and Comparative Criminology*, 56(5), 811-829. doi:10.1177/0306624X11407154
- Andershed, H. A., Kerr, M., Stattin, H., & Levander, S. (2002). Psychopathic traits in non-referred youths: A new assessment tool. In E. Blaauw (Ed.) *Psychopaths current international perspectives* (pp. 131–158). Den Haag: Elsevier. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:oru:diva-6748>
- Baskin, D., & Sommers, I. (2014). Exposure to community violence and trajectories of violent offending. *Youth Violence and Juvenile Justice*, 12(4), 367-385. doi: 10.1177/1541204013506920
- Baskin-Sommers, A. R., & Baskin, D. (2016). Psychopathic traits mediate the relationship between exposure to violence and violent juvenile offending. *Journal of Psychopathology and Behavioral Assessment*, 38(3), 341-349. doi: 10.1007/s10862-016-9535-0
- Blanca, M., Alarcón, R., Arnau, J., Bono, R., & Bendayan, R. (2017). Non-normal data: Is

- ANOVA still a valid option?. *Psicothema*, 29(4), 552-557. Retrieved from Psicothema, 2017 info:eu-repo/semantics/openAccess
- Brame, R., Fagan, J., Piquero, A. R., Schubert, C. A., & Steinberg, L. (2004). Criminal careers of serious delinquents in two cities. *Youth Violence and Juvenile Justice*, 2(3), 256-272. doi:10.1177/1541204004265877
- Caldwell, M., Skeem, J., Salekin, R., & Van Rybroek, G. (2006). Treatment response of adolescent offenders with psychopathy features: A 2-year follow-up. *Criminal Justice and Behavior*, 33(5), 571-596. doi: 10.1177/0093854806288176
- Carrington, Peter J. (2002). Group crime in Canada. *Canadian Journal of Criminology and Criminal Justice* 44(3): 277–316. Retrieved from <https://utpjournals.press/loi/cjccj>
- Carrington, P. J. (2009). Co-offending and the development of the delinquent career. *Criminology*, 47(4), 1295-1329. doi:10.1111/j.1745-9125.2009.00176.x
- Cauffman, E., Skeem, J., Dmitrieva, J., & Cavanagh, C. (2016). Comparing the stability of psychopathy scores in adolescents versus adults: How often is “fledgling psychopathy” misdiagnosed? *Psychology, Public Policy, and Law*, 22(1), 77-91. doi: 10.1037/law0000078
- Conway, K.P., & McCord, J. (2002). A longitudinal examination of the relation between co-offending with violent accomplices and violent crime. *Aggressive Behavior*, 28(2), 97-108. doi:10.1002/ab.90011
- Dyck, H. L., Campbell, M. A., Schmidt, F., & Wershler, J. L. (2013). Youth psychopathic traits and their impact on long-term criminal offending trajectories. *Youth Violence and Juvenile Justice*, 11(3), 230-248. doi: 10.1177/1541204012469414

- Falco Metcalfe, C., & Baker, T. (2014). The drift from convention to crime: Exploring the relationship between co-offending and intermittency. *Criminal Justice and Behavior*, 41(1), 75-90. doi:10.1177/0093854813500775
- Goldweber, A., Dmitrieva, J., Cauffman, E., Piquero, A.R., & Steinberg, L. (2011). The Development of criminal style in adolescence and young adulthood: Separating the lemmings from the loners. *Journal of Youth and Adolescence*, 40(3), 332-346. doi:10.1007/s10964-010-9534-5
- Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford: Stanford University Press.
- Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American Journal of Sociology*, 89(3), 552-584. doi: 0002-960218418903-0002.X01.50
- Hodgson, B. (2007). Co-offending in UK police recorded crime data. *The Police Journal: Theory, Practice and Principles*, 80(4), 333-353. doi:10.1350/pojo.2007.80.4.333
- Huizinga, D., Esbensen, F. A., & Weiher, A. W. (1991). Are there multiple paths to delinquency? *Journal of Criminal Law & Criminology*, 82(1), 83-118. doi: 0091-4169/91/9=8201-0083
- McCord, J., & and Conway, K.P. (2002). Patterns of juvenile delinquency and co-offending. In: E.J. Waring & D. Weisburd (Eds.), *Crime and social organization. Advances in criminological theory*. Volume 10. (pp. 15-30). New Brunswick and London: Transaction Publishers.
- McGloin, J.M., & Nguyen, H. (2012). It was my idea: considering the instigation of co-offending. *Criminology*, 50(2), 463-494. doi:10.1111/j.1745-9125.2011.00266.x
- McGloin, J. M., & O'Neill Shermer, L. (2009). Self-control and deviant peer network structure. *Journal of Research in Crime and Delinquency*, 46(1), 35-72. doi: 10.1177/0022427808326585

- Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: a developmental taxonomy. *Psychological Review*, *100*(4), 674-701. doi: 10.1037/0033-295X.100.4.674
- Monahan, K. C., Steinberg, L., Cauffman, E., & Mulvey, E. P. (2013). Psychosocial (im)maturity from adolescence to early adulthood: Distinguishing between adolescence-limited and persisting antisocial behavior. *Development and Psychopathology*, *25*(4pt1), 1093-1105. doi: 10.1017/S0954579413000394
- Mulvey, E.P. (2004). Introduction: Pathways to Desistance Study. *Youth Violence and Juvenile Justice*, *2*(3), 211-295. doi:10.1177/1541204004266287
- Mulvey, E.P. (2012). Research on Pathways to Desistance [Maricopa County, AZ and Philadelphia County, PA]: Subject Measures, 2000-2010. Ann Arbor, MI: Inter-university Consortium for Political and Social Research.
- Mulvey, E. P., & Schubert, C. A. (2012). Some initial findings and policy implications of the pathways to desistance study. *Victims & Offenders*, *7*(4), 407-427. doi:10.1080/15564886.2012.713903
- Piquero, A.R., Farrington, D.P., & Blumstein, A. (2007). *Key issues in criminal career research: New analyses of the Cambridge Study in Delinquent Development*. Cambridge: Cambridge University Press.
- Reiss, A.J. (1980). Understanding changes in crime rates. In S. Feinberg & A.J. Reis (Eds.), *Indicators of crime and criminal justice: Quantitative studies* (pp. 11-17). Washington, DC: Bureau of Justice Statistics.
- Reiss, A.J. (1988). Co-offending and criminal careers. *Crime and Justice* *10*, 117-170. doi:10.1086/449145
- Reiss, A.J. & Farrington, D.P. (1991). Advancing knowledge about co-offending: Results from a prospective longitudinal survey of London males. *The Journal of*

Criminal Law and Criminology, 82(2), 360-395. doi: 10.2307/1143811

Sarnecki, J. (2001). *Delinquent networks: Youth co-offending in Stockholm*. Cambridge: Cambridge University Press.

Schubert, C.A., Mulvey, E.P., Steinberg, L., CAuffman, E., Losoya, S.H., ... Knight, G.P. (2004). Operational lessons from the Pathways to Desistance Project. *Youth Violence and Juvenile Justice*, 2(3), 237-255. doi:10.1177/1541204004265875

Selner-O'Hagan, M. B., Kindlon, D. J., Buka, S. L., Raudenbush, S. W., & Earls, F. J. (1998). Assessing exposure to violence in urban youth. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 39(2), 215-224. doi:10.1017/S002196309700187X

Steinberg, L., & Cauffman, E. (1996). Maturity of judgment in adolescence: Psychosocial factors in adolescent decision making. *Law and Human Behavior*, 20(3), 249-272. doi: 10.1007/BF01499023

Steinberg, L. D., Cauffman, E., & Monahan, K. (2015). *Psychosocial maturity and desistance from crime in a sample of serious juvenile offenders*. Laurel, MD: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. Retrieved from: <http://www.pathwaysstudy.pitt.edu>.

Steinberg, L., & Monahan, K. C. (2007). Age differences in resistance to peer influence. *Developmental Psychology*, 43(6), 1531-1543. doi:10.1037/0012-1649.43.6.1531

Stolzenberg, L., & D'Alessio, S. J. (2008). Co-offending and the age-crime curve. *Journal of Research in Crime and Delinquency*, 45(1), 65-86. doi:10.1177/0022427807309441

Stolzenberg, L., & D'Alessio, S. J. (2016). A commentary on Zimring and Laqueur (2015): Juveniles and co-offending and why the conventional wisdom is often wrong. *Journal of Crime and Justice*, 39(4), 550-555. doi:10.1080/0735648X.2016.1199967

- Thornberry, T. P., Lizotte, A. J., Krohn, M. D., Farnworth, M., & Jang, S. J. (1994). Delinquent peers, beliefs, and delinquent behavior: A longitudinal test of Interactional Theory. *Criminology*, 32(1), 47-83. doi:10.1111/j.1745-9125.1994.tb01146.x
- Uhnoo, S. (2015). Starting a fire together: The dynamics of co-offending in juvenile arson. *European Journal of Criminology*, 13(3), 315-331. doi:10.1177/1477370815617189
- van Mastrigt, S.B., & Farrington, D.P. (2011). Prevalence and characteristics of co-offending recruiters. *Justice Quarterly*, 28(2), 325-359. doi:10.1080/07418825.2010.482535
- Warr, M. (1996). organization and instigation in delinquent groups. *Criminology*, 34(1), 11-37. doi:10.1111/j.1745-9125.1996.tb01193.x
- Warr, M. (2002). *Companions in crime: The social aspects of criminal conduct*. Cambridge: Cambridge University Press.
- Weerman, F.M. (2003). Co-offending as social exchange: Explaining characteristics of co-offending. *The British Journal of Criminology*, 43(2), 398-416. doi:10.1177/1477370814539070
- Weinberger, D. A., & Schwartz, G. E. (1990). Distress and restraint as superordinate dimensions of self-reported adjustment: A typological perspective. *Journal of Personality*, 58(2), 381-417. doi: 10.1111/j.1467-6494.1990.tb00235.x
- Wright, B. R. E., Caspi, A., Moffitt, T. E., & Silva, P. A. (2001). The effects of social ties on crime vary by criminal propensity: A life-course model of interdependence. *Criminology*, 39(2), 321-348. doi: 10.1111/j.1745-9125.2001.tb00925.x
- Zimring, F.E. (1981). Kids, groups and crime: Some implications of a well-known

secret. *Journal of Criminal Law & Criminology*, 72(3), 867-885. doi:

10.2307/1143269

Table 1*Style for total offending*

Wave and style	Mean Age	SD	Min	Max	Total N	Total %	Agg. N	Agg. %
6 months	16.59	1.15	14	20				
Solo					181	29.3	193	34.7
Co					198	32.0	237	42.6
Mixed					239	38.7	126	22.7
12 months	17.08	1.17	15	20				
Solo					167	30.3	167	34.8
Co					200	36.3	222	46.3
Mixed					184	33.4	91	19.0
18 months	17.55	1.14	15	21				
Solo					158	32.6	156	37.6
Co					178	36.7	187	45.1
Mixed					149	30.7	72	17.3
24 months	18.05	1.16	16	21				
Solo					136	30.4	128	35.4
Co					169	37.7	176	48.6
Mixed					143	31.9	58	16.0
30 months	18.52	1.16	16	22				
Solo					137	35.4	120	40.8
Co					128	33.1	121	41.2
Mixed					122	31.5	53	18.0
36 months	19.04	1.16	17	22				
Solo					140	35.4	129	44.6
Co					135	34.1	117	40.5
Mixed					121	30.6	43	14.9
48 months	20.06	1.16	18	23				
Solo					157	35.0	137	39.1
Co					134	29.9	148	42.3
Mixed					157	35.0	65	18.6
60 months	21.05	1.16	18	24				
Solo					180	43.2	122	52.6
Co					105	25.2	56	24.1
Mixed					132	31.7	54	23.3
72 months	22.06	1.17	20	25				
Solo					169	43.0	146	48.8
Co					104	26.5	115	38.5
Mixed					120	30.5	38	12.7
84 months	23.06	1.17	20	26				
Solo					160	45.5	119	49.2
Co					100	28.4	99	40.9
Mixed					92	26.1	24	9.9

Table 2*Total Offending Frequency*

	N	M	SD	F	<i>p</i>	Eta Squared	ANOVA	ANOVA
6 months[†]								
Solo	181	13.88	76.86	10.30‡	.000***	.03*	< mixed	-
Co	198	37.42	164.65				< mixed	-
Mixed	239	102.56	294.90				> solo	> co
12 months[†]								
Solo	167	14.38	46.75	20.39‡	.000***	.07**	< mixed	< co
Co	198	43.70	159.09				< mixed	> solo
Mixed	239	154.01	337.47				> solo	> co
18 months[†]								
Solo	158	33.41	110.44	17.53‡	.000***	.07**	< mixed	-
Co	178	66.20	253.78				< mixed	-
Mixed	149	214.18	417.64				> solo	> co
24 months[†]								
Solo	136	69.53	264.44	5.21‡	.01**	.02*	< mixed	-
Co	169	111.51	475.89				-	-
Mixed	143	218.48	410.25				> solo	-
30 months[†]								
Solo	137	62.88	213.69	15.38‡	.000***	.07**	< mixed	-
Co	128	64.54	155.93				< mixed	-
Mixed	122	284.46	585.89				> solo	> co
36 months[†]								
Solo	140	96.75	360.90	14.35‡	.000***	.07**	< mixed	-
Co	135	65.59	146.85				< mixed	-
Mixed	121	327.00	641.02				> solo	> co
48 months[†]								
Solo	156	115.29	325.98	5.27‡	.000***	.02*	< mixed	-
Co	134	108.07	224.50				< mixed	-
Mixed	157	218.90	408.91				> solo	> co
60 months[†]								
Solo	180	76.39	164.32	26.69‡	.000***	.11***	< mixed	-
Co	105	87.25	215.37				< mixed	-
Mixed	132	320.73	485.01				> solo	> co
72 months[†]								
Solo	169	85.32	191.24	23.44‡	.000***	.11***	< mixed	-
Co	104	85.98	201.65				< mixed	-
Mixed	120	328.29	506.51				> solo	> co
84 months[†]								
Solo	160	85.57	208.95	18.26‡	.000***	.11***	< mixed	-
Co	100	60.64	231.32				< mixed	-
Mixed	92	259.86	332.88				> solo	> co

p* < .05; *p* < .01; ****p* < .001.

† Games-Howell Comparison

‡ Equal variances not assumed

Effect size: *Small, **Medium, ***Large

Table 3
Aggressive Offending

	N	M	SD	F	<i>p</i>	Eta Squared	ANOVA	ANOVA
6 months[†]								
Solo	193	4.71	14.81	15.75‡	.00**	.05*	< mixed	-
Co	237	6.36	13.43				< mixed	-
Mixed	126	13.17	12.01				> solo	> co
12 months[†]								
Solo	167	4.05	10.17	14.06‡	.00**	.06**	< mixed	-
Co	222	7.41	18.80				< mixed	-
Mixed	91	17.04	29.13				> solo	> co
24 months[†]								
Solo	128	4.68	12.67	8.18‡	.00**	.04*	< mixed	-
Co	176	7.68	21.36				-	-
Mixed	58	18.71	36.47				> solo	-
48 months[†]								
Solo	137	5.91	20.78	3.37‡	.04*	.02*	< mixed	-
Co	148	11.91	45.35				-	-
Mixed	65	19.46	32.49				> solo	-

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

[†] Games-Howell Comparison

[‡] Equal variances not assumed

Effect size: *Small, **Medium, ***Large

Table 4*Table showing significant ANOVA results for style of offending and risk*

	Exp. Viol.		Peer ASB		Peer ASI		Impulse Control		YPI total	
6 months										
Solo	< mixed	< co	< mixed	-	< mixed	< co	> mixed	-	< mixed	-
Co	< mixed	> solo	< mixed	-	< mixed	> solo	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
12 months										
Solo	< mixed	-	< mixed	-	< mixed	< co	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	> solo	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
18 months										
Solo	< mixed	< co	< mixed	< co	< mixed	-	> mixed	-	< mixed	-
Co	< mixed	> solo	< mixed	> solo	< mixed	-	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
24 months										
Solo	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
30 months										
Solo	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
36 months										
Solo	< mixed	-	< mixed	-	< mixed	< co	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	> solo	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
48 months										
Solo	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
60 months										
Solo	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co
72 months										
Solo	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Co	< mixed	-	< mixed	-	< mixed	-	> mixed	-	-	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	-
84 months										
Solo	< mixed	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Co	-	-	< mixed	-	< mixed	-	> mixed	-	< mixed	-
Mixed	> solo	> co	> solo	> co	> solo	> co	< solo	< co	> solo	> co

OFFENDING STYLE RISK FACTORS

Table 5
Results for Multinomial Logistic Regression Analysis

Variable	CMS	Co offenders		Solo offenders	
	N	OR (95% CI)	SE	OR (95% CI)	SE
12 months	180	N=200		N=161	
YPI total score		0.99 (0.98/1.00)	.01	0.99 (0.98/1.00)	.01
Impulse control		1.27 (0.90/1.78)	.17	1.22 (0.98/1.00)	.19
Peer antisocial behave.		0.96 (0.68/1.35)	.18	0.75 (0.51/1.10)	.20
Peer antisocial infl.		0.96 (0.68/1.35)	.18	0.69 (0.46/1.03)	.21
Exposure to violence		0.78 (0.70/0.97)***	.06	0.75 (0.65/0.84)***	.07
24 months	142	N=167		N=132	
YPI total score		1.00 (0.98/1.01)	.01	0.99 (0.98/1.01)	.01
Impulse control		1.78 (1.19/2.65)**	.21	2.27 (1.49/3.48)***	.22
Peer antisocial behave.		0.58 (0.39/0.87)**	.21	0.67 (0.43/1.03)	.22
Peer antisocial infl.		1.11 (0.75/1.64)	.20	1.05 (0.68/1.60)	.22
Exposure to violence		0.79 (0.69/0.98)***	.01	0.78 (0.68/0.90)**	.01
48 months	156	N=132		N=152	
YPI total score		1.00 (0.98/1.01)	.01	1.00 (0.99/1.02)	.01
Impulse control		1.38 (0.92/2.09)	.21	1.83 (1.21/2.76)**	.21
Peer antisocial behave.		0.56 (0.36/0.86)**	.22	0.58 (0.38/0.89)*	.22
Peer antisocial infl.		0.99 (0.65/1.52)	.22	0.72 (0.46/1.13)	.23
Exposure to violence		0.90 (0.80/1.00)*	.01	0.88 (0.79/0.99)*	.06
84 months	90	N=100		N=153	
YPI total score		1.00 (0.98/1.01)	.01	0.99 (0.98/1.01)	.01
Impulse control		1.38 (0.86/2.19)	.24	1.32 (0.85/2.06)	.23
Peer antisocial behave.		0.81 (0.48/1.37)	.27	0.57 (0.34/0.96)*	.26
Peer Antisocial infl.		0.76 (0.44/1.30)	.27	0.88 (0.53/1.48)	.27
Exposure to violence		0.92 (0.79/1.06)	.08	0.82 (0.71/0.95)**	.08

*p < .05; **p < .01; ***p < .001.

OR = Odds Ratio. SE = Standard Error. 95% CI = Confidence Interval.