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Predicting the Transition From Juvenile Delinquency to Adult Criminality: Gender Specific Influences in Two High-Risk Samples

Kimberly A. Rhoades,

Washington State University & University of Oregon

Leslie D. Leve,

University of Oregon & Oregon Social Learning Centre

J. Mark Eddy, and

Partners for Our Children, University of Washington

Patricia Chamberlain

Oregon Social Learning Center

Abstract

Background—Most juvenile offenders desist from offending as they become adults, but many continue and ultimately enter the adult corrections system. There has been little prospective examination of which variables may predict the latter transition, particularly for women.

Aims—Our aim was to find out, for men and women separately, what variables identifiable in adolescent offenders predict their continuation of offending into adult life.

Methods—Participants were 61 male and 81 female youths who had been referred from the juvenile justice system for chronic delinquency and recruited into randomised controlled trials comparing Multidimensional Treatment Foster Care (MTFC) with group care ('treatment as usual'). All participants had attained adulthood by the time of our study. We first examined gender differences in childhood risk factors, and then used Cox proportional hazards models to estimate the relationship of potential risk factors to first adult arrest.

Results—Results indicated that, for men, juvenile justice referrals alone predicted risk of any first adult arrest as well as arrest for felony arrest specifically. Each additional juvenile referral increased the risk of any adult arrest by 9% and of adult felony arrest by 8%. For women, family violence, parental divorce and cumulative childhood risk factors, but not juvenile justice referrals, were significant predictors of adult arrest. Each additional childhood risk factor increased the risk of adult arrest by 21%. Women who experienced parental divorce were nearly three times more likely to be arrested as an adult and those who experienced family violence 2.5 times more so than those without such experiences.

Conclusions and Implications for Practice—We found preliminary evidence of gender differences in childhood risk factors for adult offending, and, thus potentially, for the development and use of interventions tailored differently for girls and boys and young men and young women to reduce their risk of becoming adult recidivists.

Introduction

Although most juvenile offenders eventually desist from delinquent behaviour (e.g., Farrington, 1986; Piquero et al., 2007), many continue their criminal behaviour into adulthood. Patterson & Yoerger (1993) proposed and Moffitt et al (1996), using evidence from a longitudinal birth cohort study, later supported that there are at least two distinct antisocial behaviour pathways: adolescent-limited, wherein adolescents start to engage in delinquent behaviour in adolescence but also desist within that period, and early-onset-life-course-persistent, where such behaviours begin in childhood and persist into adulthood. The latter was statistically supported only in boys. When faced with adolescents already in the juvenile justice system, however, and at high risk of further offending, other variables may come into play. Theories of criminal careers propose that a range of childhood risk factors influence these trajectories. Consistent with an age-graded theory of informal social control, Sampson & Laub (1993), for example, suggested that the increasing responsibilities and social role changes involved in the transition to adulthood – such as becoming a spouse, parent and/or employee – are less compatible with delinquency; increasing maturation of impulse control has also been seen as reducing delinquent behaviours (Keating, 2004).

Several studies have focused on predictors of juvenile-limited recidivism for young people already within the juvenile justice system (see Cottle et al., 2001) and have found that offence history, age at first offence, family dysfunction, being maltreated in childhood and substance use predict juvenile recidivism (Alarid et al., 2012; Baglivio & Jackowski, 2013; Cottle et al., 2001; Fendrich, 1991; Risler et al., 2000; Ryan et al., 2013; Stoolmiller & Blechman, 2005), but few studies have examined predictors of entry into the adult justice system given prior involvement in the juvenile justice system. Those that do generally support the early-onset-life-course persistent model, showing that adult offending is not only associated with juvenile justice system involvement (Benda et al., 2001; Patterson & Yoerger, 1999; Piquero & Buka, 2002) but also earlier age at first offence (Benda et al., 2001). Girls and women are much less studied in this context because they form a minority in the criminal justice population; as of 2011 girls accounted for 29% of juvenile arrests (Office of Juvenile Justice and Delinquency Prevention, 2013). One study that did examine predictors of recidivism in a sample of women found that early onset offending and lack of a spousal relationship were significant predictors (Mahoney & Karatzias, 2012). Another study, however, found that marriage was associated with desistance in criminal behaviour for men, but not for women (Horney et al., 2012).

To our knowledge, no gender-sensitive empirical work has focused on other predictors found to be associated with adult recidivism, for example, childhood maltreatment, family instability, or substance use, in high risk samples of adolescents with prior involvement with the juvenile justice system. Although Odgers and colleagues (2008) found that maternal mental health, parental discipline, and family conflict differentially predicted persistent

antisocial behaviour from adolescent limited antisocial behaviour *in a population based sample*, it is unclear the extent to which these factors differentially predict *criminal persistence versus desistance in a sample of adolescents already involved with the juvenile justice system*. These high risk adolescents represent the subset most likely to persist in their offending into adulthood and therefore the subset most likely to benefit from intervention.

Our aims were to (1) examine the prevalence of childhood adversity variables for boys and girls involved with the juvenile justice system and (2) identify childhood predictors of first occurrence of adult justice system involvement for men and women with significant juvenile justice system involvement. We hypothesised that delinquency related variables would be the predictors of recidivism for both women and men. In contrast, due to the dearth of gender-sensitive research on other childhood predictors of *adult recidivism*, we made no prediction.

Method

Participants

Adolescent boys (mean [M] age 14.90 years, standard deviation [SD] 1.30) and girls (M age 15.31, SD 1.17) involved in the juvenile justice system participated in sequential randomised controlled trials (RCTs) of outcomes for youths assigned to Multidimensional Treatment Foster Care (MTFC; boys $n = 37$; girls $n = 81$) or Group Care (GC; boys $n = 42$; girls $n = 85$) in the state of Oregon. All had had at least one referral to juvenile justice and had been mandated to out-of-home care due to chronic delinquency. Recruitment for boys occurred from 1991 to 1995 and for girls from 1997 to 2006. Referral and recruitment procedures were identical in both trials; juvenile justice court judges referred participants who they had mandated to out-of-home placements. The study's project manager then randomly assigned eligible participants into MTFC or GC.

We obtained official adult police arrest records for each of the 79 young men and 166 young women who participated in the original studies, but for our current analyses, we included only participants who were at least 20 years old when adult arrest records were obtained and who were from the same county, resulting in a subsample of 61 men and 81 women. Men in this subsample were more likely than the rest to come from homes with incomes below \$10,000/year ($\chi^2 = 7.28$; $p < 0.01$), but there were no other significant differences between the two subsamples. Prior to age 18, boys averaged 16.46 ($SD 9.07$) criminal referrals and girls 8.77 ($SD = 5.21$). The mean age at first criminal referral was 12.8 years ($SD 1.58$) for boys and 12.78 ($SD 1.66$) for girls. Relative to the local county population, these represent high-risk delinquent samples. 49 (80%) of the boys in our subsample were White, 3 (5%) African American, 2 (3%) Native American, 6 (10%) Latino, and 1 (2%) described their race/ethnicity as "other." For girls, the figures were 57 (70%) White, 2 (2%) African-American, 4 (5%) Latino, 1 (1%) Native American and 17 (22%) mixed race/ethnicity.

Intervention Conditions

Both studies included two "active" intervention conditions, MTFC and services-as-usual GC. MTFC has received national attention as a cost-effective alternative to residential care for adolescents (Chamberlain, 2003; Aos & Drake, 2013). MTFC involves placing high-risk

youths individually in well-trained and supervised foster homes where foster parents have been trained in evidence-based parenting skills and are provided with ongoing supervision and support. MTFC has been shown to be effective in improving delinquency-related and other relevant outcomes (Chamberlain et al., 2007; Leve et al., 2005; Eddy et al., 2015; Harold et al., 2013; Kerr et al., 2009; Leve & Chamberlain, 2007).

In contrast, GC represented the “services as usual” condition, in which each boy was placed in 1 of 11 group care programmes for boys operating in the state at the time of the study. Most programmes used some variation of the Positive Peer Culture approach (Vorrath & Brendtro, 1985). Each girl in the GC condition was placed in 1 of 35 community-based programmes for girls in the state in the same period. The orientations of their programmes were eclectic (61.5%) or behavioural (38.5%).

Measures

Adult arrest records—We obtained official arrest reports for men in July of 2004 and for women in June of 2012, about 9–13 years after the baseline interviews for the men and 6–15 years for the women. From these records, we computed the length of time between age 18 and each participant’s first arrest and first felony arrest. Oregon state defines a felony as a serious crime usually punishable by at least one year in prison; examples include: first-degree assault, murder, second-degree burglary, and first-degree rape.

Childhood variables—At the time of referral, the caseworker assigned to the young person completed an interview about his or her family history. From these data, we extracted eight variables that most closely correspond to the risk factors identified in previous research: juvenile felony, physical abuse, sexual abuse, family violence, having at least one parent convicted of a crime, parental divorce, serious drug and/or alcohol use, and any prior out of home placements. Some variables occurred in less than five cases among the men; these were family violence, physical abuse, and sexual abuse. Given their low base rates, these could not be included individually in the analyses, but they were still considered in the composite count variable described below for inclusiveness. We first examined the relationship between the chosen variables individually, and then summed together as a composite count of the eight individual variables. For purposes of computing the composite count, the number of placements was recoded, with 0–1 out-of-home placements coded as “0” and two or more out-of-home placements coded as “1.” The other seven risk factors were already dichotomous. Scores on the eight variables were then added together to yield a total indicating cumulative risk.

Age at first juvenile referral—Participants’ age at first juvenile justice referral was coded from their official juvenile records.

Number of juvenile referrals—Juvenile justice referrals were collected from state police records and circuit court data during adolescence (see Chamberlain & Reid, 1998).

Intervention assignment—Intervention assignment was included as a control variable and coded as 0 (GC) or 1 (MTFC).

Analyses

First, the prevalence of the chosen childhood variables was examined separately for men and women, and tested for gender differences using Pearson chi-squares for dichotomous risk factors and an independent samples *t*-test for the continuous cumulative risk score. We used a Bonferroni correction (Tabachnick & Fidell, 2007) for these comparisons resulting in a significance value of $p < 0.006$. Secondly, we used Cox proportional-hazards regression models (Klein & Moeschberger, 2005) to test for predictors of first adult arrest and first adult felony arrest. Cox regression analysis allows for the estimation of risk for the event of interest occurring (i.e. first arrest during adulthood), accounting for the possibility that the study ended before the participant *would have* been arrested if given enough time - that is, the procedure accounts for 'right censoring'. For participants who were not arrested during follow-up, the time-to-event was censored at the collection date of the official record. As some participants from the original RCTs were excluded from our present analysis, to increase the comparability of the male and female samples, and because we are primarily interested in the relationship of potential risk factors to first arrest during adulthood, we include intervention assignment as a control variable only. We implemented multiple imputation procedures for missing data. Data were coded as "missing" if the caseworker was unaware of whether a risk factor was present or absent. Fifteen imputed datasets were created using multiple imputation procedures in SPSS 20. All study variables and control variables were included in the imputation procedures. Imputed values for dichotomous variables were restricted to 0 or 1 so those variables could be accurately specified as categorical in the survival analyses. Results are presented for the pooled analyses. Complete data were available for all other included variables. Data were analysed using SPSS 20.

Results

Descriptive Statistics

Table 1 shows the prevalence of the selected variables in the sample; five of the variables were significantly more prevalent among the girls than among the boys. There was also a sex difference in cumulative baseline risk ($t(142) = -6.50, p < 0.001$). Table 1 also provides descriptive statistics for juvenile referral and adult arrest data by gender. Ninety-five percent of the men in our study had at least one official adult arrest record; for women it was 67%. The respective percentages for felony arrests were 79% and 39%, respectively. Table 2 shows the correlation matrix between the variables. Although a high percentage of the men in our sample were arrested for at least one adult offence, hazard rates obtained via Cox proportional hazards modelling can be interpreted as the rate at which risk is accumulated over time, thus indicating risk for entering the adult justice system at a younger age.

Survival Models

There were significant differences between the Kaplan-Meier survival curves for men and women; $\chi^2 = 38.30; p < 0.001$ for all arrests, $\chi^2 = 25.53; p < 0.001$ for felony arrests (See Figures 1a and 1b). The median days to first arrest as an adult for men was 171 days (95% confidence interval (CI): 89.6 – 251.4); for women it was 1,365 days (95% CI: 579.28 – 2150.72). For men, the number of juvenile criminal referrals ($b = 0.09; p < 0.001$) was a significant predictor of adult arrest and adult felony arrest ($b = 0.08; p < 0.01$; see Table 3).

This meant that for every additional juvenile referral, the likelihood of any arrest as an adult increased by about 9% and of a felony arrest by 8%. No other variables predicted arrests for men. For women, parental divorce ($b = 1.02$; $p < 0.05$), family violence ($b = 0.92$; $p < 0.05$), and cumulative risk ($b = .19$; $p < 0.05$) were significant predictors of adult arrest. Each additional childhood risk factor increased the risk of any arrest as an adult by 21%; women who had experienced parental divorce were 2.8 times (95% confidence interval [CI] 1.08 – 5.81) more likely to be arrested as an adult and those who experienced family violence were 2.5 times (95% CI: 1.13 – 6.82) more likely to be arrested as an adult than those who did not have those experiences as a child. None of the variables measured were significant predictors of felony arrest for women.

Discussion

In these samples of vulnerable young adults, we found not only that women had significantly higher rates of certain adversities in childhood, especially parental divorce and experience of family violence, but that these experiences increased the risk of a first offence during adulthood, and were the only such variables to do so. In contrast, only the number of juvenile referrals predicted a first adult offence for men. In some respects these findings are consistent with previous literature. A previous study, for example, found that although men had more serious criminal involvement than women, women had higher rates of sexual and physical abuse, which most often occurred within a familial context, prior to incarceration (Messina et al., 2006). The significant association between juvenile referrals and adult arrests is similarly consistent with prior literature for men (Benda et al., 2001; Piquero & Buka, 2002). We did not, however, replicate earlier findings that age at first offence during childhood significantly predicted being arrested as an adult. The latter could be partially influenced by the moderate correlation between the number of juvenile referrals and the age at first referral ($r = -0.42$ for men and $r = -0.35$ for women). By including both variables in the same model, we may have reduced the power of either as an individual predictor. Nevertheless, at least one other study similarly found no association between early onset offending and the persistence of offending into adulthood (Stoolmiller & Blechman, 2005). These discrepant findings could also be related to comparatively limited variation in juvenile referrals in these high-risk samples of boys and girls, all of whom had a relatively high number of prior police referrals.

The significant associations for women between childhood family violence and adult arrests and parental divorce and adult arrests are consistent with prior research conducted *within* adolescence (Cottle et al., 2001; Fendrich, 1991; Kennedy et al., 2006); we cannot wholly explain why the prevalence of these problems was so much higher among the women in our samples. The differential prevalence by gender, however, is consistent with prior literature showing higher rates of victimisation within the family, particularly sexual victimisation, for girls than boys in the juvenile justice system (Dierkhising et al., 2013; Foy et al., 2012). Clearly, family relationships had significantly failed many of the girls in our sample, as they were exposed to traumatic situations with long-term, serious implications for their development (Landsford et al., 2002; Landsford et al., 2007; Molnar et al., 2001). The significant relationship between such early problems and later offending may be at least partly accounted for by the fact that girls may place more value than boys on relationships ys

(Kinsfogel & Grych, 2004). Further, there is some evidence that girls are more likely to intervene in inter-parental conflict (Vuchinich et al., 1988). Divorce and/or the conflict that typically precedes divorce may have a greater impact on the parent-child relationships of girls (Yu et al., 2010; Zill et al., 1993) and girls' emotional adjustment (Wintre et al., 2011). Unfortunately, our study was not designed to explore these issues further.

Limitations

The original studies from which we drew our data were not designed to examine differences between boys and girls in the juvenile justice system. Recruitment was at different times and across broader regions. To cope, we used subsamples to maximise sample comparability except for sex of the participants. This may not, however, have resolved differences in the samples related to historical and other effects. Differences in the years during which recruitment occurred for boys and girls could have influenced our results, a possibility that could not be empirically examined due to the non-overlapping recruitment windows. The fact that the men and women in our study evidenced marked differences in exposure to childhood risk factors indicated that they might represent different subgroups of juvenile offenders. Regardless, what we were most interested in here was not differences in the prevalence of potential risk factors, but differences in the predictive ability of potential risk factors. The differences that we did find suggest that different types of services may be needed for boys and girls entering the juvenile justice system. Although our use of official juvenile referrals and adult arrest records provided an objective indication of juvenile and adult offending and allowed for complete data to be collected for all participants, it undoubtedly underestimated the true rate of criminal acts (Piquero et al., 2013). Lastly, the results may not generalise to juvenile justice populations with markedly different characteristics from those in Oregon.

Conclusions and Implications

We found preliminary evidence that family adversity, and specifically family violence, among girls but not boys significantly predicted time to first adult arrest for high risk individuals who were well known to the juvenile justice system. This has implications for preventive interventions during childhood and adolescence and perhaps later interventions during adulthood as well. Long-term follow-up studies of Multisystemic Therapy and Functional Family Therapy, for example, have demonstrated that this may be effective in reducing criminality during early and middle adulthood (Gordon et al., 1995; Sawyer & Borduin, 2011; Schaeffer & Borduin, 2005). Perhaps effects for girls on adult criminality *may be* enhanced by adding intervention components that focus on the issue of family violence that are not currently part of these programmes, both of which were originally developed for boys. In contrast, juvenile offending was the sole predictor of adult arrests for men, which is more in keeping with the emphases within these programs on specific predictors of juvenile offending, such as inept parenting and deviant peer association (Reid et al., 2002).

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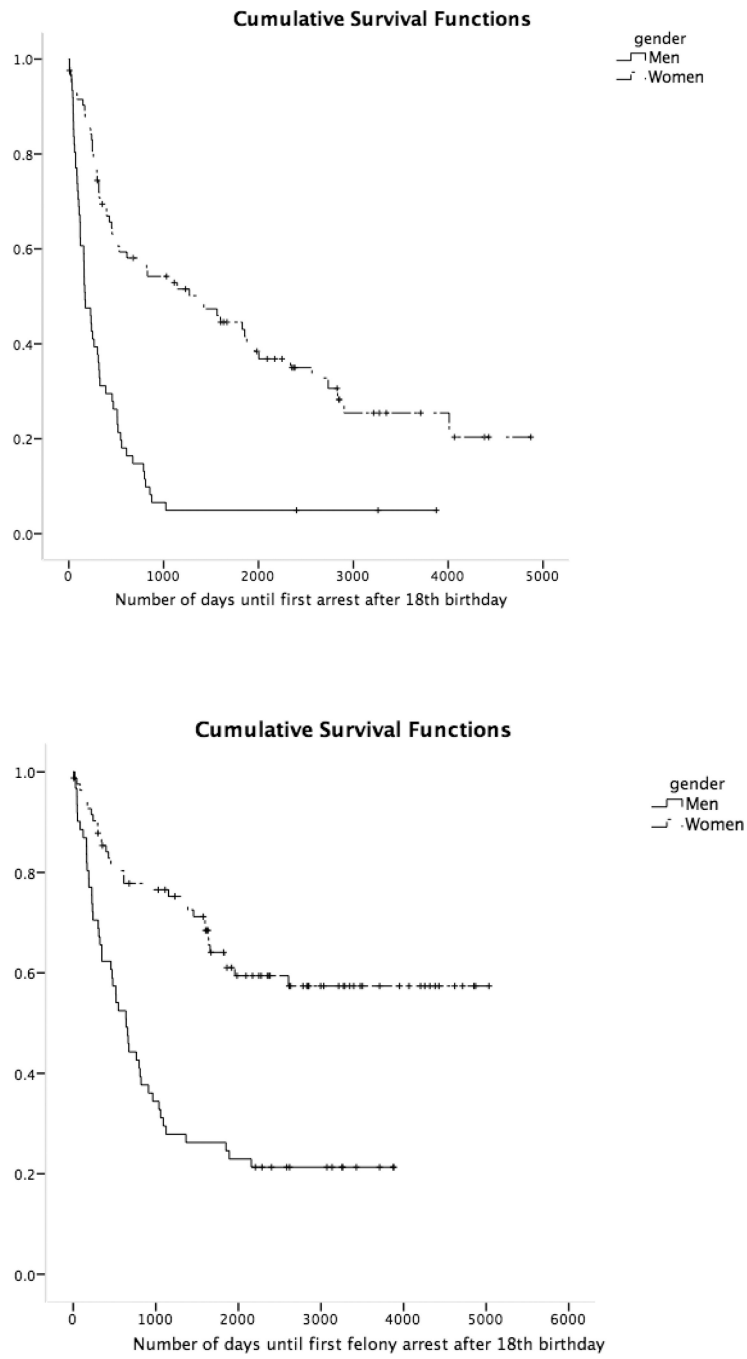


Figure 1.
Kaplan-Meier Survival Curves by Gender

Table 1

Childhood Risk Factors and Juvenile Justice and Criminal Justice System Involvement by Gender

| Childhood Risk Variable | Men | | Women | |
|--------------------------|--------------------|--|--------------------|--|
| | Mean (SD)/% (n) | | Mean (SD)/% | |
| Juvenile Felony | 83.6% (n = 51) | | 64.0% (n = 52) | |
| Physical Abuse | 6.6% *** (n = 4) | | 55.4% *** (n = 45) | |
| Sexual Abuse | 3.3% *** (n = 2) | | 48.2% *** (n = 39) | |
| Family Violence | 6.6% *** (n = 4) | | 41.0% *** (n = 33) | |
| Parent Convicted | 21.3% *** (n = 13) | | 56.6% *** (n = 46) | |
| Parent Divorced | 55.7% (n = 34) | | 49.4% (n = 40) | |
| Serious Drug/Alcohol Use | 8.2% *** (n = 5) | | 72.3% *** (n = 59) | |
| Prior Placements (2+) | 29.5% (n = 18) | | 38.6% (n = 31) | |

| Arrest Variable | Range | Mean (SD)/% | Range | Mean (SD)/% |
|---|------------|---------------------|------------|---------------------|
| Number of Juvenile Records | 1–39 | 16.46 (9.07) *** | 1–26 | 8.77 (5.21) *** |
| Age at First Criminal Referral | 8.51–15.59 | 12.80 (1.58) | 8.11–16.47 | 12.78 (1.66) |
| Number of Adult Arrests | 0–37 | 11.13 (8.51) *** | 0–22 | 3.04 (4.20) *** |
| Number of Adult Felony Arrests | 0–18 | 4.15 (4.09) *** | 0–18 | 1.36 (3.06) *** |
| Number of Days to First Adult Arrest | 8–1024 | 279.10 (261.75) *** | 7–4011 | 871.07 (930.30) *** |
| Number of Days to First Adult Felony Arrest | 20–2157 | 561.17 (504.32) * | 7–2607 | 876.81 (724.68) * |
| Percent with Any Adult Arrest | | 95% (n = 58) | | 67% (n = 54) |
| Percent with Felony Adult Arrest | | 79% (n = 48) | | 39% (n = 32) |
| Percent of Drug Possession/Distribution Charges | | 2.7% (n = 2) | | 10.0% (n = 8) |

Note:

* denotes significantly different prevalence by gender at $p < .05$;

*** $p < .001$.

Table 2
Correlation matrix of potential risk factors for adult offenders according to sex or participant

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---------------------------------|-------|----------|-------|----------|-------|---------|--------|----------|--------|-------|-------|--------|---------|---------|
| 1. Intervention Assignment | -- | -0.11 | -0.09 | 0.09 | -0.09 | 0.02 | -0.24* | 0.10 | -0.20 | -0.10 | 0.00 | -0.07 | -0.03 | 0.06 |
| 2. Age | 0.10 | -- | 0.09 | -0.35*** | -0.05 | -0.13 | -0.06 | -0.10 | -0.31* | -0.17 | -0.07 | -0.20 | 0.24* | 0.10 |
| 3. Ethnicity | -0.24 | 0.13 | -- | 0.04 | -0.11 | 0.18 | 0.11 | 0.28* | 0.04 | -0.01 | 0.17 | -0.06 | 0.12 | 0.06 |
| 4. Juvenile Referrals | -0.11 | -0.42*** | 0.08 | -- | 0.28* | 0.06 | 0.06 | 0.07 | -0.00 | 0.15 | -0.04 | -0.03 | -0.26* | -0.23* |
| 5. Juv. Felony | -0.21 | -0.01 | -0.09 | 0.05 | -- | 0.01 | 0.10 | 0.07 | 0.07 | 0.11 | -0.04 | -0.29* | 0.11 | -0.22 |
| 6. Physical Abuse | -0.13 | -0.09 | 0.19 | 0.21 | 0.09 | -- | 0.14 | -0.46*** | 0.19 | 0.01 | 0.29* | 0.11 | -0.01 | -0.02 |
| 7. Sexual Abuse | -0.18 | -0.12 | 0.13 | 0.10 | 0.06 | 0.70*** | -- | -0.04 | 0.04 | -0.02 | 0.11 | 0.15 | 0.02 | -0.10 |
| 8. Family Violence | -0.14 | 0.12 | 0.16 | 0.01 | -0.15 | -0.09 | -0.06 | -- | 0.26 | 0.06 | -0.03 | 0.15 | -0.19 | 0.07 |
| 9. Parent Convicted | -0.13 | -0.06 | 0.06 | -0.11 | -0.14 | -0.13 | -0.09 | 0.32* | -- | 0.12 | 0.08 | 0.04 | -0.24 | -0.11 |
| 10. Parent Divorced | 0.21 | 0.03 | -0.14 | 0.12 | -0.14 | 0.09 | -0.04 | 0.11 | 0.23 | -- | 0.16 | -0.11 | -0.23 | -0.13 |
| 11. Drug/Alcohol Use | 0.01 | 0.01 | -0.04 | -0.11 | 0.10 | 0.15 | 0.28* | -0.09 | -0.02 | 0.01 | -- | -0.18 | 0.02 | -0.08 |
| 12. Prior Placements | -0.13 | -0.13 | 0.28* | 0.08 | -0.13 | 0.20 | 0.19 | 0.08 | 0.26 | 0.01 | -0.00 | -- | -0.01 | 0.32** |
| 13. Days to Adult Arrest | 0.20 | 0.31* | -0.06 | -0.40*** | -0.25 | -0.01 | -0.07 | 0.25 | 0.02 | 0.01 | 0.11 | 0.07 | -- | 0.67*** |
| 14. Days to Adult Felony Arrest | 0.18 | 0.17 | 0.05 | -0.38*** | -0.17 | 0.05 | -0.11 | 0.03 | 0.13 | 0.10 | 0.11 | 0.05 | 0.53*** | -- |

Note: Correlations for boys/men below the diagonal, correlations for girls/women above the diagonal.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Note: For ease of reading, bolded values indicate corresponding *p*-values less than .05.

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